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UK METEOROLOGICAL OFFICE GLOBAL DATA MONITORING REPORT

FEBRUARY, 95

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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Bracknell. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Bracknell in time for inclusion into the appropriate analysis. The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background field). Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

Comments or queries on the report are welcome and should be addressed to:-

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2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1-2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIBU observations received per day throughout the month at Bracknell and assimilated into model runs. Only data from the main hours of 00 UTC, 06 UTC, 12 UTC and 18 UTC are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At RSMC Bracknell, for synoptic stations at or below a height of 500 metres, reported mean sea-level pressure is used in the statistics. If this is unavailable the mean sea-level pressure is calculated from the reported station-level pressure and temperature.

For synoptic stations above 500 metres, the mean sea-level pressure is calculated from the reported station-level pressure and temperature, or, if these are not available the height of a standard pressure-level (e.g.: 850 hPa or 700 hPa). If neither of these are available, the reported mean sea-level pressure is used.

Some stations vary their reporting practice according to the observation hour (e.g.: some stations in the CIS report both mean sea-level and station-level pressure at 00 & 12 UTC, but only mean sea-level pressure at 06 & 18 UTC). For monitoring purposes, reported mean sea-level pressure is stored separately from that calculated from station-level pressure or height of a standard pressure-level. Only statistics for the preferred method (see above) are presented in this report, and so for certain high-level stations, such as those from the CIS, approximately half of the number of observations actually received will appear in the statistics.

Aircraft observations

TABLE 4 contains a list of statistics calculated from data received from all airline carriers.

Figure 3 shows 10 degree lat/long box average numbers of AIREP/ASDAR reports received per day throughout the month at Bracknell and assimilated into model runs in the layer 70-500 hPa. Observations with a vector wind difference (compared with the model background field) of >60 ms^{-1} have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4-7 show wind statistics for AIREP/ASDAR in the layer 70-500 hPa. Observations with a vector wind difference > 60 $m\ s^{-1}$ have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure	Parameter
4	Mean wind vectors
5	Mean observation - background wind vector
6	Mean observation-background speed ($m\ s^{-1}$)
7	RMS observation-background vector ($m\ s^{-1}$)

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Bracknell and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-27 show satellite *mean* observation-background temperature differences for NOAA-11 soundings at 500 km resolution and figures 28-30 show the same statistics for NOAA-12. Data are plotted where there are > 30 observations in a 10 degree lat/long box.

Figure	Layer (hPa)
25/28	850-1000
26/29	100-300
27/30	30-50

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Bracknell during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Bracknell in DRIFTER code during the month for the area 10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Bracknell from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics **(Geopotential Height and Windspeed at 100 and 500 hPa)** for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: BRACKNELL
MONTH:February, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for ships, fixed buoys and platforms.

Standard of comparison :Background field from Bracknell global model.

Observation times :00, 06, 12, 18 UTC

Elements monitored :Mean sea level pressure (hPa).
:Wind speed (m s^{-1}).
:Wind direction (Degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors. **N.B. a positive bias indicates the observation is veered to the background.**

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT :15 hPa (pressure)
:25 m s^{-1} (vector wind)

SELECTION CRITERIA :NOBS $\geq$ 20 , and one or more of the following:

1. |bias| $\geq$ 4 hPa (pressure),
$\geq$ 5 m s^{-1} (wind speed),
$\geq$ 30 degrees (direction).

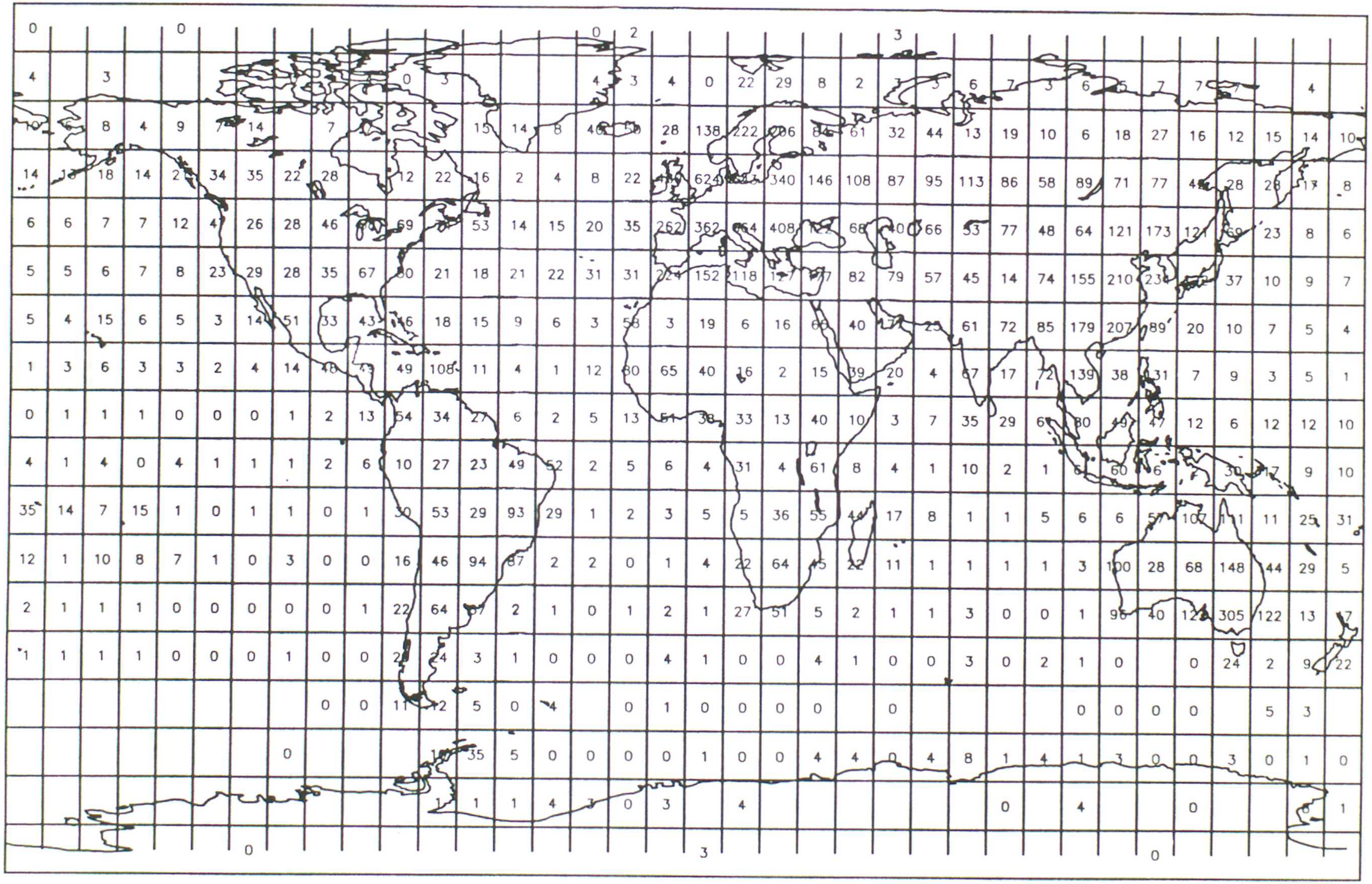
2. SD $\geq$ 6 hPa (pressure),
$\geq$ 80 degrees (direction).

3. PGE $\geq$ 25

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE									
A8SF	ALL	MSLP	SUR	71	2	3	3.5	4.4	5.6
BONH	ALL	MSLP	SUR	30	1	3	1.2	6.2	6.3
CG2613	ALL	MSLP	SUR	24	7	29	4.4	-0.5	4.4
C6FA6	ALL	MSLP	SUR	20	0	0	1.1	-6.2	6.3
C6KB6	ALL	MSLP	SUR	36	0	0	1.2	-4.9	5.1
DIOR	ALL	MSLP	SUR	42	0	0	1.1	4.3	4.5
D5NE	ALL	MSLP	SUR	34	0	0	1.5	6.4	6.6
OUZW2	ALL	MSLP	SUR	22	0	0	2.4	5.3	5.9
OYMO2	ALL	MSLP	SUR	30	11	37	2.3	-12.9	13.1
PGDS	ALL	MSLP	SUR	38	0	0	1.3	-4.3	4.5
P3XM4	ALL	MSLP	SUR	62	0	0	2.0	-4.8	5.2
TFLE	ALL	MSLP	SUR	29	1	3	3.3	-4.6	5.7
UFAA	ALL	MSLP	SUR	31	1	3	1.6	6.2	6.4
USRV	ALL	MSLP	SUR	20	8	40	8.2	5.8	10.0
VRUA4	ALL	MSLP	SUR	65	0	0	1.0	5.1	5.2
ZBWP	ALL	MSLP	SUR	32	0	0	0.8	4.3	4.4
3EAY5	ALL	MSLP	SUR	23	0	0	1.4	-4.7	4.9
3EER8	ALL	MSLP	SUR	48	0	0	1.3	-4.5	4.6
3EWK9	ALL	MSLP	SUR	28	0	0	0.9	4.6	4.7
63102	ALL	MSLP	SUR	104	0	0	1.7	5.3	5.6
WIND SPEED									
CGUM	ALL	SPEED	SUR	42	0	0	4.0	5.2	6.6
C6HU5	ALL	SPEED	SUR	32	2	6	6.4	5.1	8.1
C6JD4	ALL	SPEED	SUR	20	2	10	3.5	11.0	11.6
C6KI6	ALL	SPEED	SUR	22	2	9	6.3	11.6	13.2
DPBP	ALL	SPEED	SUR	23	2	9	4.6	6.8	8.2
FNIH	ALL	SPEED	SUR	83	1	1	5.4	9.6	11.0
HSGX	ALL	SPEED	SUR	31	1	3	4.6	14.3	15.0
JKPP	ALL	SPEED	SUR	36	0	0	3.2	5.2	6.1
JNBO	ALL	SPEED	SUR	22	0	0	3.4	5.1	6.1
LAVW4	ALL	SPEED	SUR	41	0	0	3.3	5.3	6.2
LYFZ	ALL	SPEED	SUR	49	6	12	6.3	5.6	8.5
OUEW	ALL	SPEED	SUR	94	4	4	7.4	9.7	12.2
P3LE5	ALL	SPEED	SUR	45	0	0	3.1	-7.6	8.2
P3XM4	ALL	SPEED	SUR	48	1	2	2.9	6.8	7.3
VRUM3	ALL	SPEED	SUR	34	0	0	2.6	5.4	6.0
3EPB6	ALL	SPEED	SUR	28	0	0	5.0	5.9	7.7
WIND DIRECTION									
C6JD4	ALL	DIRN.	SUR	20	2	10	78.7	31.4	84.7
C6KI6	ALL	DIRN.	SUR	20	2	10	83.4	14.9	84.7
HDRF	ALL	DIRN.	SUR	42	0	0	57.1	-33.7	66.3
46006	ALL	DIRN.	SUR	74	0	0	26.4	-55.7	61.7
46053	ALL	DIRN.	SUR	22	0	0	73.0	-71.2	102.0
46054	ALL	DIRN.	SUR	56	0	0	33.7	-38.8	51.4
46131	ALL	DIRN.	SUR	52	0	0	44.6	-43.1	62.0
46146	ALL	DIRN.	SUR	49	0	0	54.9	-35.0	65.1
62126	ALL	DIRN.	SUR	97	0	0	30.9	30.8	43.7

AVAILABILITY – SHIP/SYNOP – FEBRUARY 1995
MAIN HOURS ONLY
10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS
TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 17126

FIGURE 1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14 13 18 14 21 34 35 22 28 12 22 16 2 4 8 22 624 340 146 108 87 95 113 86 58 89 71 77 44 28 28 17 8
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5 4 15 6 5 3 14 51 33 43 46 18 15 9 6 3 58 3 19 6 16 68 40 17 23 61 72 85 179 207 89 20 10 7 5 4
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4 1 4 0 4 1 1 1 2 6 10 27 23 49 52 2 5 6 4 31 4 61 8 4 1 10 2 1 6 60 16 7 30 17 9 10
35 14 7 15 1 0 1 1 0 1 30 53 29 93 29 1 2 3 5 5 36 55 44 17 8 1 1 5 6 6 57 107 11 11 25 31
12 1 10 8 7 1 0 3 0 0 16 46 94 87 2 2 0 1 4 22 64 45 22 11 1 1 1 1 3 100 28 68 148 44 29 5
2 1 1 1 0 0 0 0 0 1 22 64 67 2 1 0 1 2 1 27 51 5 2 1 1 3 0 0 1 96 40 122 305 122 13 17
1 1 1 1 0 0 0 1 0 0 24 24 3 1 0 0 0 4 1 0 0 4 1 0 0 3 0 2 1 0 0 24 2 9 22
0 0 11 12 5 0 4 0 1 0 0 0 0 0 0 0 0 0 0 5 3
0 10 35 5 0 0 0 0 1 0 0 4 4 0 4 8 1 4 1 3 0 0 3 0 1 0
1 1 1 4 3 0 3 4 0 4 0 6 1
0 3 0

TABLE 2

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: BRACKNELL
MONTH:February, 95

Monitoring procedures

Period	:One calendar month.
Data monitored	:Reports from each unique identifier for drifting buoys.
Standard of comparison	:Background field from Bracknell global model.
Position	:Average latitude and longitude for period.
Observation times	:00, 06, 12, 18 UTC
Elements monitored	:Mean sea level pressure (hPa). :Wind speed (m s^{-1}). :Wind direction (degrees).

Parameters monitored

:NOBS	:Number of observations received excluding duplicates.
:NGE	:Number of observations with gross errors.
:PGE	:Percentage of observations with gross errors.
:SD	:SD of difference of observations from background values excluding those with gross errors.
:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. a positive bias indicates the observation is veered to the background.**
:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT

:15 hPa (pressure)
:25 m s^{-1} (vector wind)

SELECTION CRITERIA

:NOBS ≥ 20 , and one or more of the following:

1. |bias| ≥ 4 hPa (pressure),
≥ 5 m s^{-1} (wind speed),
≥ 30 degrees (direction).

2. SD ≥ 6 hPa (pressure),
≥ 80 degrees (direction).

3. PGE ≥ 25.

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
16936	-40.4	58.4	ALL	MSLP	SUR	66	0	0	3.6	4.9	6.1
17610	-51.0	-5.0	ALL	MSLP	SUR	379	26	7	5.3	8.5	10.0
WIND SPEED											
46527	43.0	168.8	ALL	SPEED	SUR	38	0	0	2.7	-5.2	5.8
52656	7.3	151.6	ALL	SPEED	SUR	167	0	0	1.9	-5.4	5.7
64544	56.0	-40.6	ALL	SPEED	SUR	209	0	0	3.9	-7.7	8.6
WIND DIRECTION											
46509	41.8	-137.6	ALL	DIRN.	SUR	200	1	0	122.5	-8.4	122.8
46657	47.6	-153.8	ALL	DIRN.	SUR	148	0	0	36.3	-38.6	53.0
51502	21.4	-142.7	ALL	DIRN.	SUR	169	0	0	114.5	-18.5	116.0
64544	56.0	-40.6	ALL	DIRN.	SUR	192	0	0	80.9	-13.6	82.1

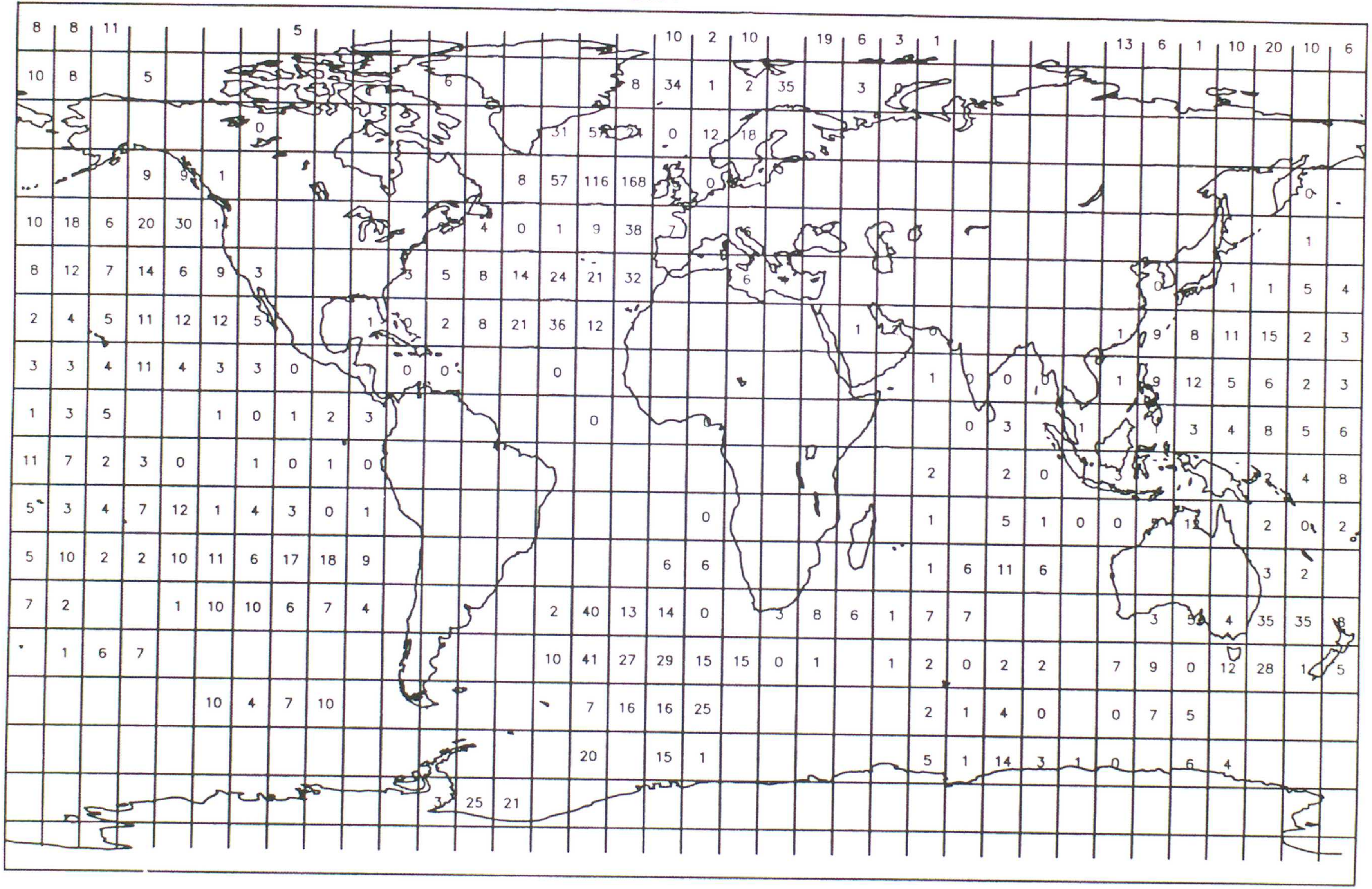
AVAILABILITY – DRIBU – FEBRUARY 1995

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS =   2404

FIGURE 2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10 8 5 6 8 34 1 2 35 3
0 31 57 24 0 12 18
9 9 1 8 57 116 168 0 0
10 18 6 20 30 14 4 0 1 9 38 7 6 1
8 12 7 14 6 9 3 3 5 8 14 24 21 32 6 0 1 1 5 4
2 4 5 11 12 12 5 1 0 2 8 21 36 12 1 0 1 9 8 11 15 2 3
3 3 4 11 4 3 3 0 0 0 0 1 0 0 0 1 9 12 5 6 2 3
1 3 5 1 0 1 2 3 0 0 3 1 1 3 4 8 5 6
11 7 2 3 0 1 0 1 0 2 2 0 3 2 4 8
5 3 4 7 12 1 4 3 0 1 0 1 5 1 0 0 12 2 0 2
5 10 2 2 10 11 6 17 18 9 6 6 1 6 11 6 3 2
7 2 1 10 10 6 7 4 2 40 13 14 0 3 8 6 1 7 7 3 53 4 35 35 8
1 6 7 10 41 27 29 15 15 0 1 1 2 0 2 2 7 9 0 12 28 1 5
10 4 7 10 7 16 16 25 2 1 4 0 0 7 5
20 15 1 5 1 14 3 1 0 6 4
3 25 21

TABLE 3

MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: BRACKNELL
MONTH:February, 95

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for synops & autosynops.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Mean sea level pressure (hPa).
Parameters monitored	:HT(m)	:Station height (in metres) as given in WMO No. 9 Vol A
	:RP	:Pressure reporting practice M=mean sea level pressure (hPa) reported. S=Station level pressure reported. 8=Geopotential height (m) of 850 hPa surface reported. 7=Geopotential height (m) of 700 hPa surface reported.
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:%REJ	:Percentage of observations flaggled.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.
GROSS ERROR LIMIT	:15 hPa	(pressure)
SELECTION CRITERIA	:NOBS	≥ 20 ,and one or more of the following:
	1.|bias|	≥ 4 hPa
	2. SD	≥ 6 hPa
	3.PGE	≥ 25.

Note:- **For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.**
For stn ht < 500m, mslp is that as reported by the station where available.

WMO REGION 1:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
60445	36.2N	5.4E	1081	S8	108	1	1	77	0.8	4.5	4.6
60468	35.6N	6.2E	1052	S8	76	76	100	18	0.0	0.0	0.0
60511	35.3N	1.4E	1127	S8	109	107	98	99	7.3	5.4	9.1
60571	31.6N	2.2W	773	S8	106	0	0	33	0.9	-4.6	4.7
60670	24.6N	9.5E	1054	S8	106	1	1	99	1.1	8.9	9.0
63333	11.1N	39.7E	1916	MS	42	0	0	90	1.2	7.3	7.4
63453	8.8N	39.8E	1062	S	35	0	0	100	1.1	12.6	12.6
63474	7.1N	40.0E	2450	S	29	29	100	3	0.0	0.0	0.0
63478	5.1N	44.6E	320	MS	30	0	0	0	1.1	6.3	6.4
64503	3.4S	10.7E	34	M	36	0	0	3	2.4	-6.8	7.2
64507	2.9S	11.0E	79	M	44	0	0	2	2.0	-6.7	7.0
68014	19.6S	18.1E	1411	S8	29	0	0	69	1.4	-5.5	5.7

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
24382	66.4N	143.2E	196	MS	54	0	0	22	3.0	4.2	5.2
24671	63.9N	135.9E	400	MS	91	1	1	73	3.7	7.5	8.4
25538	64.1N	164.6E	326	MS	105	0	0	4	2.5	4.6	5.2
25902	60.8N	151.8E	797	MS	42	17	40	95	2.1	-13.0	13.2
29999	52.5N	99.8E	1570	S8	90	89	99	58	0.0	-2.3	2.3
30253	57.9N	114.2E	278	MS	98	2	2	13	3.0	4.4	5.3
30554	54.5N	113.6E	995	MS	54	1	2	100	1.1	9.2	9.3
30627	53.1N	105.5E	761	MS	46	0	0	28	2.5	-4.2	4.9
30650	53.2N	112.8E	923	MS	53	0	0	0	1.2	-4.3	4.5
30664	53.6N	115.6E	812	MS	26	0	0	0	1.1	-4.0	4.1
30669	53.1N	117.5E	707	MS	54	0	0	4	1.4	-4.8	5.0
30739	52.2N	109.8E	666	MS	54	0	0	9	1.2	-8.3	8.4
30741	52.9N	110.5E	1255	S8	109	5	5	47	3.3	-6.8	7.6
30764	52.6N	115.2E	646	MS	51	0	0	0	1.2	-4.1	4.3
30829	51.1N	106.7E	542	MS	54	0	0	4	1.4	-4.0	4.2
30838	51.3N	108.9E	800	MS	54	0	0	0	1.6	-4.7	5.0
30846	51.4N	112.5E	741	MS	55	0	0	0	1.5	-4.9	5.1
30859	51.1N	114.6E	678	MS	53	0	0	0	1.7	-4.8	5.1
30925	50.4N	106.5E	789	MS	55	0	0	9	2.9	-4.4	5.3
30967	49.9N	115.8E	623	MS	52	0	0	0	2.0	-4.0	4.5
36870	43.4N	77.0E	663	MS	56	56	100	100	0.0	0.0	0.0
36974	41.4N	76.0E	2049	S8	109	2	2	14	2.3	4.0	4.6
36982	41.9N	78.2E	3614	S7	108	2	2	16	2.4	-4.3	4.9
38611	41.0N	71.6E	474	MS	110	0	0	9	1.5	5.2	5.4
38836	38.6N	68.8E	824	M	41	0	0	2	1.9	5.0	5.3
38954	37.5N	71.5E	2080	S8	95	3	3	23	4.2	5.1	6.6
40701	39.3N	44.4E	1470	MS	91	0	0	97	1.1	7.9	8.0
40740	36.8N	54.3E	1287	MS	43	1	2	12	1.9	-4.1	4.5
40743	36.2N	57.7E	941	MS	110	0	0	23	1.3	-4.7	4.9
40762	35.3N	59.2E	1333	MS	109	35	32	100	0.8	-13.8	13.8
40763	35.2N	58.5E	1060	MS	39	0	0	28	1.2	-5.7	5.8
40783	32.4N	49.7E	1972	MS	36	3	8	89	1.4	-8.0	8.1
40789	33.8N	55.1E	921	MS	72	1	1	100	1.3	9.0	9.1
40818	31.2N	52.7E	2004	MS	87	0	0	13	1.3	-4.3	4.5
40836	30.8N	51.7E	1880	MS	81	0	0	86	1.3	7.3	7.4
40859	29.0N	53.7E	1383	MS	87	0	0	100	1.1	9.2	9.3
41244	24.2N	55.8E	299	M	104	0	0	100	1.2	7.0	7.1
41254	23.1N	57.7E	1755	S8	80	80	100	49	0.0	0.0	0.0
44212	49.8N	92.1E	936	MS	88	5	6	66	3.8	7.8	8.7
44232	49.4N	102.7E	933	MS	80	0	0	23	2.2	-4.1	4.7
44277	46.4N	96.3E	2147	MS	79	0	0	46	1.5	-6.1	6.3
44416	28.6N	81.6E	720	MS	35	0	0	9	1.4	5.2	5.4
44477	27.0N	87.4E	1445	S8	29	29	100	100	0.0	0.0	0.0

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
47022	40.8N	128.2E	1206	S	105	1	1	34	1.7	4.0	4.3
51243	45.6N	84.9E	428	MS	110	0	0	11	2.3	4.1	4.7
51334	44.6N	82.9E	321	M	112	1	1	46	3.4	8.1	8.8
51379	44.0N	89.6E	794	M	110	0	0	59	1.8	6.2	6.5
51818	37.6N	78.3E	1376	M	112	0	0	6	3.6	5.5	6.6
52602	38.8N	93.4E	2734	S	109	0	0	38	2.3	-7.1	7.5
53083	44.6N	114.2E	1183	M	111	0	0	55	2.7	4.8	5.5
53352	41.7N	110.4E	1377	M	111	0	0	28	2.6	4.4	5.1
55696	28.4N	92.5E	3861	S	108	0	0	27	2.6	-5.0	5.6
56144	31.7N	98.6E	3204	S	97	2	2	29	2.1	-5.4	5.8
56172	31.9N	102.2E	2666	S	109	0	0	31	3.6	-4.5	5.8
56287	30.0N	103.0E	629	M	107	0	0	1	1.9	5.2	5.5
56385	29.5N	103.3E	3049	S	110	1	1	22	2.2	-4.2	4.7
56444	28.5N	98.9E	3488	S	109	108	99	99	0.0	8.8	8.8
56462	29.0N	101.5E	2994	S	97	0	0	76	2.3	4.7	5.2
57816	26.5N	106.7E	1222	MS	106	104	98	100	0.4	13.8	13.8

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
80099	7.1N	70.7W	128	MS	39	0	0	3	1.3	-4.6	4.8
80315	3.0N	75.3W	443	MS	58	0	0	0	2.3	-4.1	4.7
80432	9.4N	66.9W	161	MS	27	0	0	48	3.0	-4.8	5.7
82067	0.6N	69.2W	120	MS	32	0	0	31	3.4	4.8	5.9
82704	7.6S	72.7W	170	MS	70	0	0	1	2.3	-4.3	4.9
83208	12.7S	60.1W	652	MS	52	1	2	6	1.5	4.7	4.9
83235	12.3S	46.4W	660	MS	75	0	0	81	1.6	6.6	6.8
83332	14.1S	46.4W	950	MS	77	24	31	100	0.9	13.4	13.4
83423	16.7S	49.3W	729	MS	77	0	0	60	1.4	-5.2	5.4
83488	17.8S	42.9W	1097	MS	64	64	100	98	0.0	0.0	0.0
83512	18.5S	54.8W	286	MS	54	0	0	0	2.1	-6.5	6.8
83531	18.6S	46.5W	896	MS	80	0	0	63	1.3	-6.6	6.7
83587	19.8S	43.9W	850	MS	82	0	0	82	1.1	-7.5	7.6
83689	21.3S	43.8W	1171	MS	26	0	0	92	1.2	4.7	4.9
83704	22.3S	53.9W	369	MS	58	0	0	84	4.8	-5.4	7.2
84658	12.6S	69.2W	266	MS	79	0	0	11	3.0	4.1	5.1
84686	13.6S	72.0W	3249	S	105	0	0	59	1.7	-7.6	7.8
84782	18.1S	70.3W	469	MS	106	0	0	3	1.6	5.5	5.7
85223	17.4S	66.2W	2548	S7	98	2	2	30	2.2	-5.1	5.6
85312	19.8S	63.9W	992	S	39	0	0	100	1.7	-10.5	10.6
85365	22.0S	63.7W	643	MS	47	1	2	34	2.4	6.0	6.5
85406	18.3S	70.3W	58	M	107	0	0	3	1.1	5.5	5.6
87046	24.4S	65.1W	905	S8	89	89	100	99	0.0	0.0	0.0
87322	31.3S	66.6W	658	MS	66	66	100	0	0.0	0.0	0.0
88891	51.7S	57.8W	23	M	24	11	46	71	7.1	-4.9	8.6

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
71421	51.9N	63.3W	561	S	102	0	0	28	1.4	-4.8	5.0
71966	64.1N	139.1W	370	MS	56	0	0	2	2.4	5.3	5.8
76118	30.4N	109.7W	1040	MS	37	0	0	100	1.0	-12.3	12.3
76373	25.3N	105.8W	1967	MS	72	70	97	100	0.4	14.4	14.4
76539	22.1N	101.0W	1871	MS	86	0	0	90	1.6	-4.9	5.2
76632	20.1N	98.7W	2417	MS	54	0	0	98	1.0	-6.7	6.8
76692	19.1N	96.1W	13	MS	92	0	0	2	1.8	4.9	5.2
76726	18.9N	99.3W	1560	MS	76	0	0	100	1.3	-7.7	7.8
76762	17.5N	99.5W	1360	MS	60	4	7	97	1.2	11.4	11.5
76848	16.3N	92.1W	1530	MS	100	16	16	100	0.8	-13.7	13.7
78718	14.4N	87.6W	626	MS	20	20	100	100	0.0	0.0	0.0

WMO REGION 5:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
98437	13.4N	122.5E	45	M	29	0	0	83	2.3	-4.0	4.6

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
01245	62.6N	9.7E	630	MS	82	1	1	96	1.5	-5.5	5.7
06762	46.2N	8.9E	198	MS	110	0	0	2	3.1	4.1	5.1
06771	45.9N	8.9E	356	MS	109	0	0	6	2.9	4.2	5.1
08221	40.5N	3.6W	633	MS	101	0	0	100	1.2	7.2	7.3
11105	47.3N	9.6E	440	MS	28	0	0	0	1.9	4.4	4.8
11141	47.4N	13.2E	550	MS	109	0	0	12	1.6	4.9	5.2
11241	47.2N	15.5E	1438	S8	82	38	46	76	5.3	-6.1	8.1
11360	47.5N	14.1E	710	MS	28	0	0	14	1.3	4.8	5.0
15052	47.4N	25.6E	1541	S8	97	2	2	98	1.1	-6.3	6.4
16020	46.5N	11.3E	1461	MS	49	49	100	0	0.0	0.0	0.0
16054	45.7N	7.4E	547	MS	72	72	100	85	0.0	0.0	0.0
16134	44.2N	10.7E	2173	S8	104	2	2	53	1.4	-4.7	4.9
16614	40.4N	21.3E	604	MS	107	2	2	99	1.1	-7.3	7.4
17084	40.6N	35.0E	837	MS	104	0	0	99	1.1	7.6	7.7
17260	37.1N	37.4E	855	MS	100	98	98	100	2.9	12.0	12.3
37228	43.1N	44.6E	670	MS	53	1	2	83	2.1	-5.1	5.5
37549	41.7N	44.9E	490	MS	60	0	0	7	2.3	4.2	4.8
40184	31.8N	35.2E	809	S8	108	2	2	98	1.2	6.3	6.4

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89009	90.0S	0.0	2800	S	92	4	4	9	3.1	-4.0	5.1
89208	90.0S	0.0W	2835	S7	99	99	100	8	0.0	0.0	0.0
89262	67.0S	60.6W	17	MS	94	0	0	10	2.5	-4.2	4.9
89266	72.2S	60.3W	91	MS	93	88	95	100	1.8	-11.6	11.7
89606	78.5S	106.9E	3420	S7	109	9	8	32	4.2	-5.1	6.6
89757	73.8S	55.7E	2775	S7	54	54	100	28	0.0	0.0	0.0
89803	68.5S	102.2E	2118	S7	69	0	0	84	1.7	-9.6	9.7
89805	74.1S	109.8E	3070	S7	67	18	27	12	4.8	0.6	4.8
89811	66.7S	112.9E	1362	S8	70	0	0	43	2.8	-5.7	6.4
89828	74.5S	123.0E	3280	S7	102	9	9	43	4.5	6.3	7.7
89832	66.7S	139.8E	240	MS	83	83	100	100	0.0	0.0	0.0
89847	67.6S	146.0E	30	MS	100	0	0	18	3.1	-5.2	6.1
89860	74.2S	160.3E	1772	S8	98	0	0	11	2.0	-6.7	7.0
89863	74.9S	163.1E	30	MS	96	2	2	29	4.0	-4.3	5.9

TABLE 4

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:February, 95

Monitoring procedures		
Period		:One calendar month.
Data monitored		:Statistics for each airline carrier.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:All hours combined.
Level(s) monitored		:70.0 - 500.0 hPa
Elements monitored		:TEMP in °C ; WIND in m s^{-1}
Parameters monitored		
	:N REP.	:Number of observations received excluding duplicates.
	:PG	:Percentage of observations with gross errors.
	:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC	:Percentage of observations with calm winds.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.
GROSS ERROR LIMITS		:10.0 °C ; 60 m s^{-1} Vector Wind
SELECTION CRITERIA		:N REP $\geq$ 20

IDENT.	TEMPERATURE N.REP.	PG	PR	RMS	BIAS	WIND N.REP.	PG	PR	PC	RMS	BIAS
AAA	117	3	100	3.5	-1.3	120	0	58	0	9.8	2.1
AAL	3779	0	1	2.1	0.2	3772	0	2	0	8.7	1.1
AAN	85	0	5	1.7	-0.5	82	0	10	0	11.9	1.5
AAR	1752	1	2	2.1	-0.1	1752	0	2	0	8.4	0.6
ACA	818	1	1	2.0	0.1	820	0	1	1	7.3	0.5
ACI	35	0	0	1.5	1.0	36	0	3	0	8.1	1.3
AEA	139	12	100	4.9	1.5	134	0	5	0	9.5	0.2
AEL	604	2	4	2.0	-0.1	610	0	4	0	10.3	1.1
AFL	101	0	100	3.8	2.5	103	0	100	2	11.3	0.1
AFR	1368	1	4	2.2	-0.1	1379	0	4	0	8.9	1.3
AIC	48	2	0	3.0	-0.6	48	0	2	0	11.3	3.5
AJJ	95	3	5	2.6	0.7	93	0	8	2	10.5	1.7
AMT	335	0	3	2.6	1.0	340	0	1	0	10.6	1.0
AMX	200	3	4	1.8	0.0	206	0	1	0	8.1	0.6
ANA	777	1	1	1.8	-0.4	774	0	1	0	7.5	0.7
ANZ	3032	1	2	1.8	-0.1	3025	0	2	1	8.2	1.4
AOM	676	1	3	1.9	0.4	681	0	46	0	9.5	1.0
APW	20	0	10	2.7	-0.3	21	0	10	0	14.0	1.2
ARG	25	8	8	1.7	0.2	24	0	0	0	6.6	0.6
ARP	133	2	8	2.4	0.9	133	0	8	2	9.5	3.6
ASY	35	3	3	2.1	0.0	35	0	3	3	8.0	2.0
AUA	89	0	3	2.0	-0.6	90	0	6	0	8.4	0.4
AVA	334	3	4	2.1	-0.1	336	1	5	0	11.2	0.3
AVN	37	0	0	1.2	0.4	37	0	3	0	9.6	3.1
AZA	352	1	3	2.3	0.6	346	0	3	0	9.3	0.8
BAL	155	0	10	2.0	-0.2	155	0	12	1	8.1	-0.1
BAW	1081	0	4	2.2	0.1	1093	0	5	1	8.5	1.2
BBB	28	4	14	2.4	-1.1	28	4	18	0	8.8	1.9
BWA	334	2	1	1.9	0.2	338	0	3	0	9.3	1.0
CAL	1641	1	2	2.1	0.0	1637	0	3	0	9.0	0.8
CCA	225	3	6	2.6	0.0	225	0	93	0	11.0	-0.1
CDN	2112	0	2	2.1	0.4	2113	0	3	1	8.0	1.0
CES	118	0	3	2.3	0.3	122	1	3	0	9.4	1.2
CFC	25	0	8	2.2	0.5	26	0	12	0	6.9	0.2
CFG	950	1	2	2.2	-0.8	943	0	2	0	8.4	0.7
CKS	85	0	5	2.7	1.2	87	0	45	0	10.0	2.5
CKT	77	4	3	2.3	0.5	79	0	3	0	11.7	2.1
CLI	33	0	3	2.1	0.3	33	0	0	0	8.5	2.2
CLX	48	0	4	2.0	-0.6	48	0	4	0	9.1	2.1
CMI	1273	1	4	2.3	0.5	1296	0	2	0	8.8	0.9
CMM	228	0	4	3.0	0.9	228	0	5	0	10.2	0.0
COA	677	0	2	2.4	0.7	683	0	2	0	9.2	1.5
CPA	34	3	3	1.8	-0.9	37	0	5	0	8.2	0.7
CRL	321	3	5	2.1	-0.1	326	0	3	0	9.7	1.7
CTM	79	1	14	3.3	-1.7	81	0	14	0	9.8	0.5
CUB	130	3	3	2.6	0.9	130	0	49	1	11.3	0.8
DAF	24	0	0	2.2	1.0	23	0	9	9	6.3	-1.8
DAL	4568	1	2	2.5	0.7	4411	0	1	0	8.6	0.8
DHL	413	1	100	3.6	-1.5	418	0	45	0	10.4	0.3
DLH	2553	1	10	2.2	0.5	2566	0	12	2	8.1	1.4
DOA	155	3	14	2.1	-0.3	151	0	14	0	9.4	0.2
EIA	41	0	5	2.2	0.3	42	0	7	2	6.9	1.4
ELY	95	0	9	2.2	0.3	96	0	10	0	11.0	2.8
EVA	1442	1	2	2.1	-0.6	1444	0	4	0	9.1	0.6
FDX	903	0	2	2.1	0.8	904	0	3	1	8.8	0.9
FIN	310	0	3	2.1	0.6	312	0	5	1	9.0	0.7
FJI	433	2	3	1.7	0.8	430	0	1	1	7.4	1.4
FMN	29	0	3	2.4	0.7	29	0	0	0	8.9	1.7
GAF	59	0	0	2.1	0.5	61	2	2	0	6.0	1.2

		TEMPERATURE				WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
GFA	29	3	10	1.9	0.3	30	0	7	0	6.5	2.1
GIA	277	0	1	1.7	0.2	272	0	2	0	8.4	1.4
HAL	967	1	1	2.2	0.7	973	0	2	0	10.0	1.1
HLF	112	0	5	2.5	-1.0	110	0	3	0	9.8	0.4
HRH	27	0	0	1.7	0.5	27	0	0	0	8.5	1.9
IBE	1534	1	13	2.2	0.3	1535	0	14	0	10.8	0.5
ICE	393	0	1	2.1	0.5	389	0	2	1	6.5	0.6
JAA	52	4	0	1.9	0.5	52	0	0	0	7.1	2.5
JAL	5449	0	1	2.1	0.4	5456	0	2	0	8.2	0.9
JAZ	57	0	2	2.8	1.8	56	0	0	0	7.5	2.0
KAL	3710	1	2	2.2	0.2	3708	0	2	0	8.4	0.9
KLM	2049	1	2	2.0	0.1	2050	0	2	0	8.3	1.0
LDA	156	0	5	2.3	-1.4	157	0	6	0	8.4	-0.1
LDI	274	0	4	2.4	-1.6	276	0	4	0	9.5	-0.4
LIB	479	2	2	1.9	0.5	483	0	2	1	9.4	1.4
LOT	256	0	2	2.1	-0.3	255	0	2	0	8.0	0.4
LTU	723	0	2	1.9	0.4	693	0	2	0	9.4	0.8
MAS	201	2	2	2.2	-0.6	200	0	94	0	9.9	0.9
MDA	109	1	2	2.5	1.6	109	0	1	0	6.3	0.6
MKD	52	2	0	2.1	0.3	54	0	0	0	7.7	1.8
MPH	571	0	2	2.2	-1.0	575	0	2	0	9.2	0.7
MPK	52	2	2	2.2	0.9	54	0	2	0	9.2	0.7
MRS	55	5	9	2.1	0.2	55	0	7	0	12.6	5.3
NCA	574	0	1	1.9	0.5	575	0	3	1	8.4	1.0
NGA	77	3	5	1.4	0.2	76	0	100	5	11.1	-1.9
NWA	8965	1	2	2.4	0.9	8957	0	2	0	8.8	0.9
PAC	60	5	7	1.8	0.5	58	0	7	0	8.7	0.3
PAL	920	1	2	2.2	0.2	924	0	42	0	9.3	1.0
PAO	206	3	6	1.6	0.0	202	0	4	0	8.8	0.8
PIA	28	4	4	2.4	-1.0	28	0	0	0	6.3	0.6
PNL	31	0	3	3.3	1.8	30	0	0	0	8.3	0.9
QFA	1798	1	2	1.7	0.2	1791	0	3	1	7.9	1.4
RAF	144	0	2	2.1	0.3	143	0	1	1	10.9	3.4
RBA	22	0	0	1.2	0.2	22	0	0	0	7.4	-0.1
RIA	56	0	0	3.1	1.9	57	0	5	0	11.9	-0.6
RJA	64	0	2	2.2	0.3	66	0	3	0	9.4	-0.9
RKA	23	0	9	2.3	-1.4	23	0	13	0	11.7	1.1
RON	42	2	5	0.9	0.1	41	0	2	0	6.9	2.2
RRR	161	1	14	2.1	0.2	161	0	17	1	9.8	2.7
SAA	201	0	2	2.5	-0.5	200	0	1	0	10.2	2.4
SAB	95	0	0	1.6	-0.1	99	0	0	0	7.4	2.1
SAS	1059	0	1	1.8	0.1	1059	0	2	1	7.3	0.1
SIA	1209	1	2	2.1	-0.4	1201	0	2	0	9.3	1.1
SOL	39	3	3	1.2	0.1	39	0	0	0	5.9	1.8
SPP	219	0	8	1.8	-0.4	215	0	8	0	8.5	0.2
SVA	145	0	8	1.6	0.1	148	0	9	0	9.7	0.2
SWR	174	1	3	1.9	0.0	178	0	3	0	8.6	2.0
TAP	363	1	5	2.2	0.2	361	0	5	0	9.7	1.0
TEJ	45	0	9	3.0	1.5	45	0	13	0	9.5	1.7
THA	291	1	1	2.2	-0.4	290	0	2	0	9.2	1.0
TIH	51	0	0	1.8	-0.5	51	0	0	0	7.7	1.3
TOW	52	0	2	2.6	-0.2	54	0	0	0	7.2	1.0
TWA	891	1	3	2.3	-0.1	882	0	3	0	8.8	0.7
UAL	72541	1	4	1.9	0.1	72563	0	3	0	7.7	0.7
ULE	74	0	1	1.4	-0.1	72	0	1	0	8.2	0.4
UPS	820	2	10	2.0	0.1	825	0	10	0	9.2	1.6
USA	93	0	2	1.7	0.2	92	0	3	0	9.2	0.4
VIA	459	1	3	2.0	0.8	463	0	4	0	9.2	0.9
VIR	215	1	4	2.0	0.2	214	0	4	0	8.6	2.8

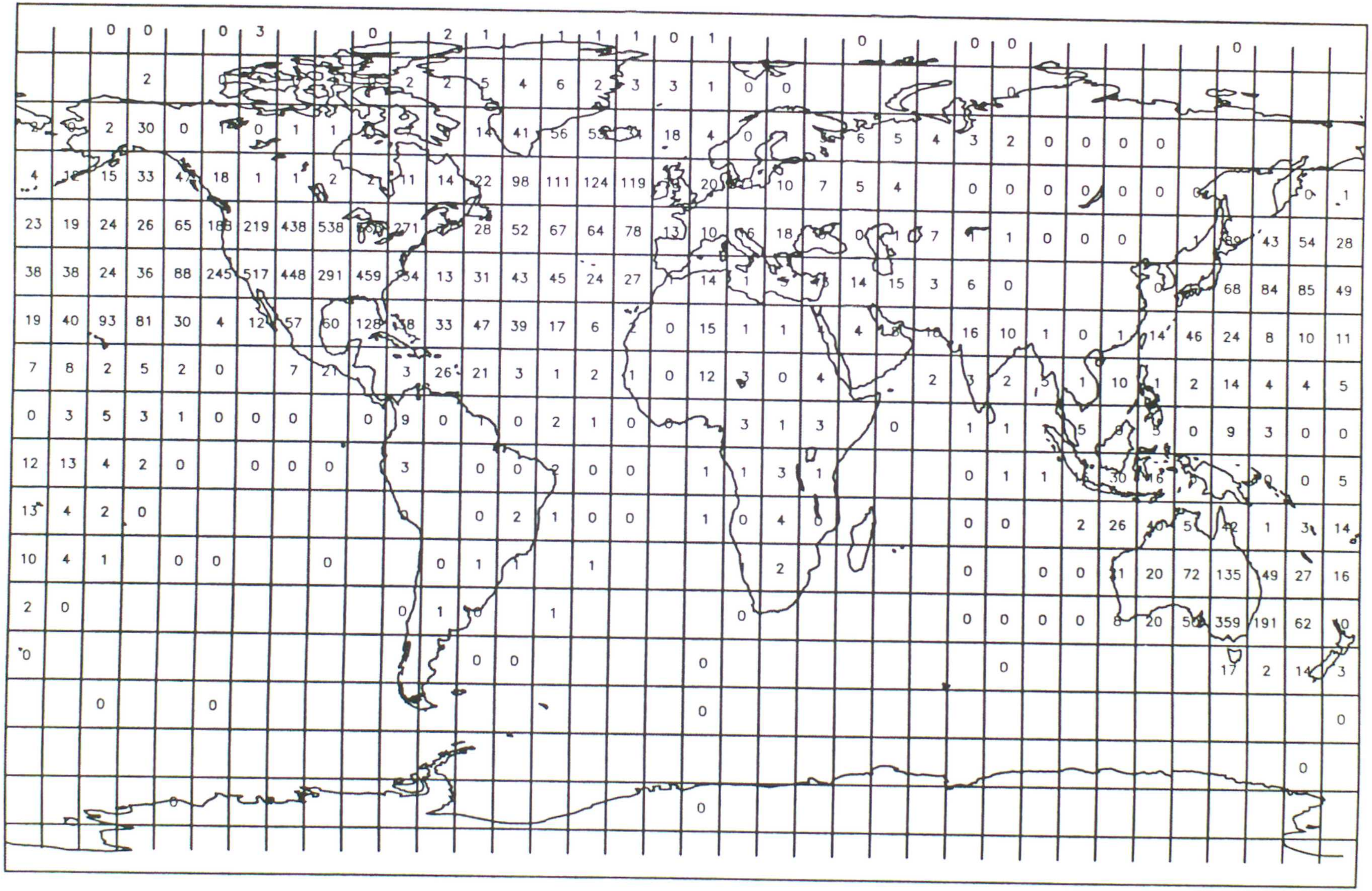
	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
VRG	34	0	0	1.9	0.4	35	0	0	0	9.2	2.6
VSP	95	1	3	2.8	-0.1	95	1	1	0	8.7	0.9
AN	22057	0	2	1.3	0.3	21805	0	2	0	7.4	1.7
BA	14517	0	21	1.9	0.7	14502	0	21	0	7.6	1.6
DL	952	5	99	3.6	0.8	952	66	99	0	47.9	-0.7
KL	8463	0	31	2.3	1.3	8463	0	16	0	8.1	1.7
LH	1755	1	3	2.0	-0.1	1745	0	52	1	7.7	1.4
NW	44933	0	2	1.8	0.2	44933	0	1	0	6.6	0.6
QF	12070	0	1	1.2	0.2	12052	0	1	0	6.9	0.9
M	240	4	98	3.7	1.2	241	2	98	0	14.8	2.5
N	374	2	5	2.6	0.3	393	0	5	0	9.8	1.1

MEAN DAILY COUNT OF AIRCRAFT 70 - 500 HPA

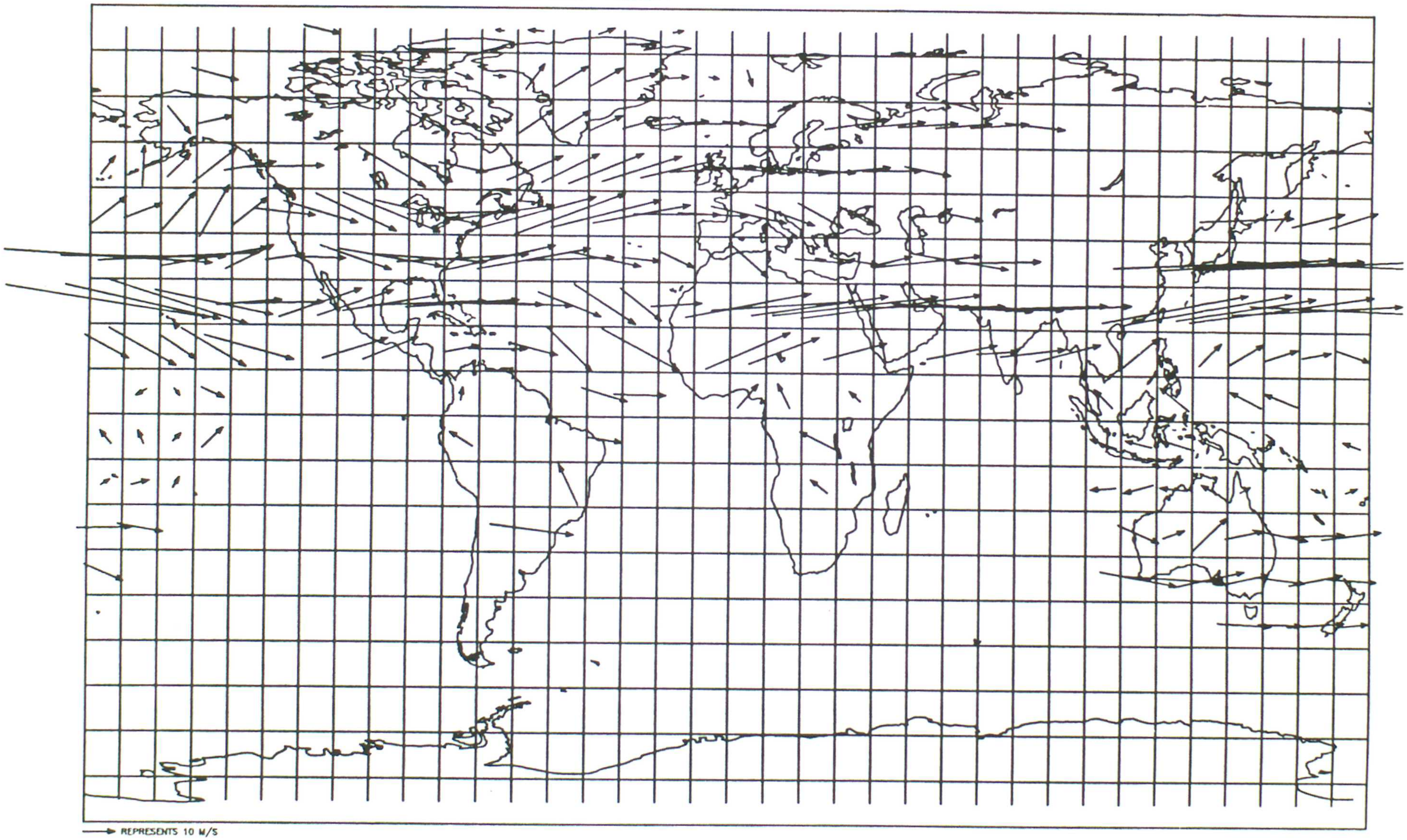
FEBRUARY 1995

OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

FIGURE 3



AIRCRAFT MEAN WINDS BETWEEN 70 AND 500 HPA   FIGURE 4
FEBRUARY 1995
OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



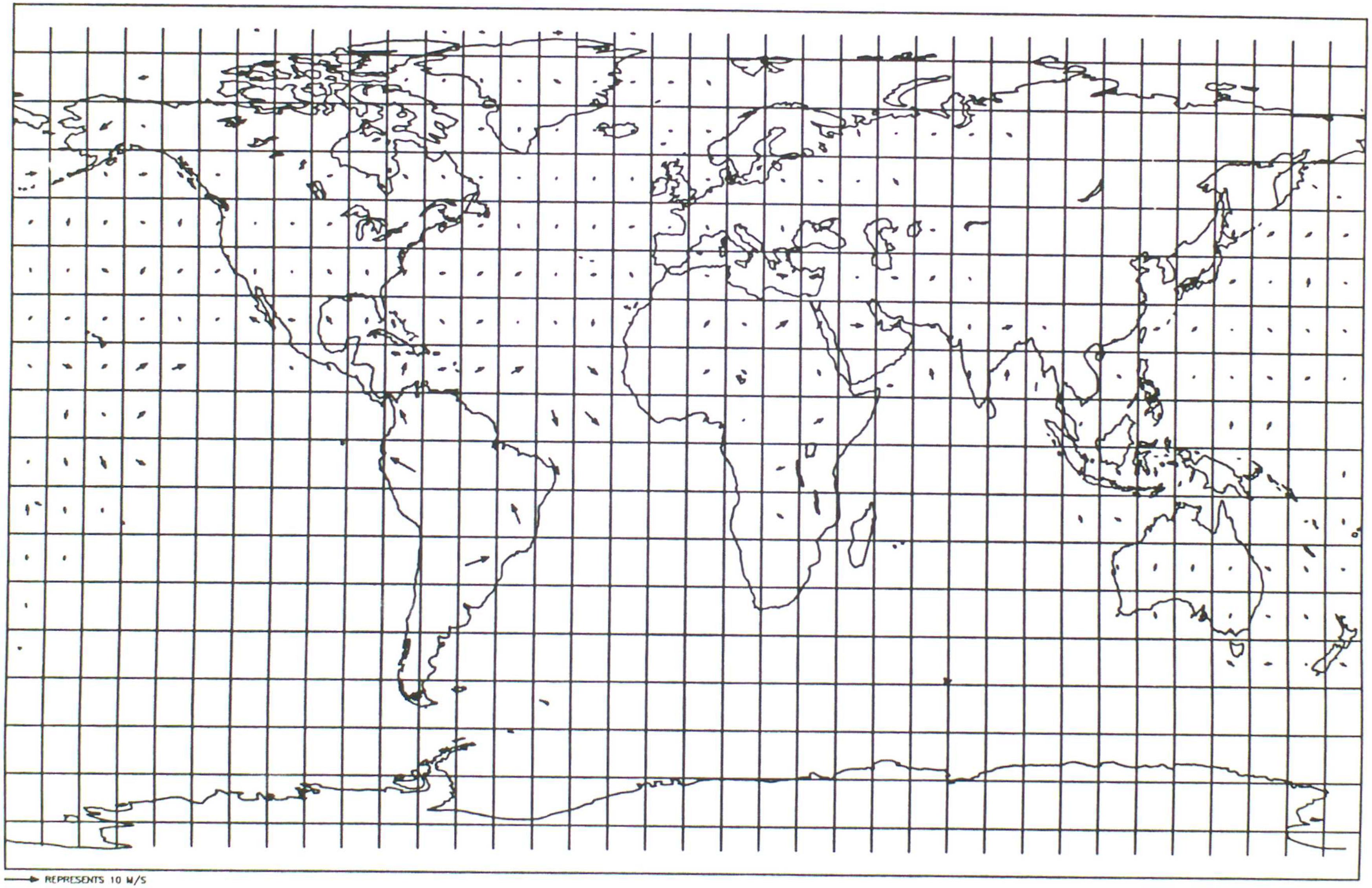
AIRCRAFT MEAN O–B WINDS BETWEEN 70 AND 500 HPA

FIGURE 5

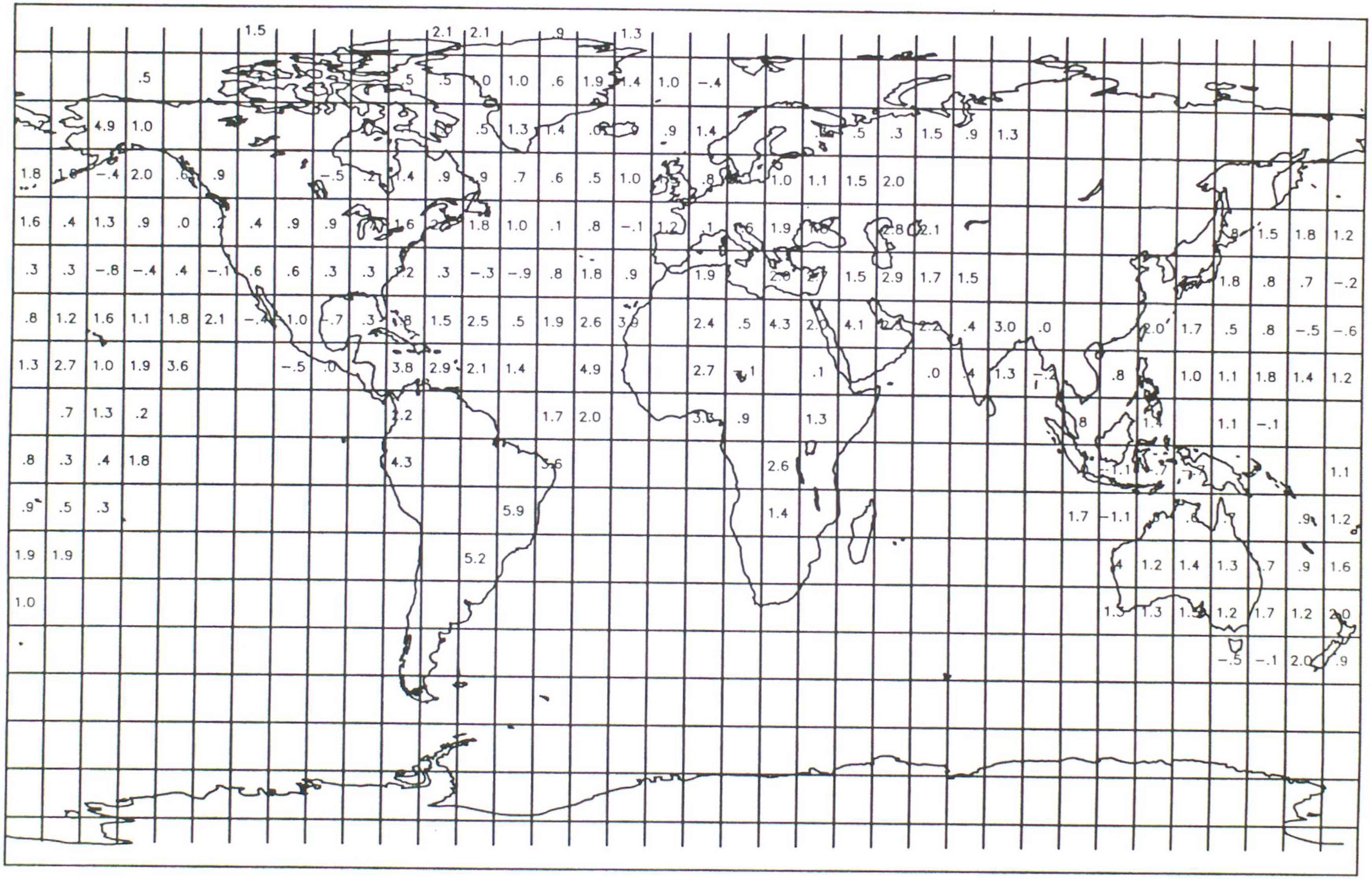
FEBRUARY 1995

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



AIRCRAFT : MEAN O-B SPEEDS (M/S) BETWEEN 70 AND 500 HPA FIGURE 6
FEBRUARY 1995
OBSERVATIONS WITH O-B VECTOR DIFFERENCE > 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT


1.5 2.1 2.1 .9 1.3
.5 .5 .5 .0 1.0 .6 1.9 1.4 1.0 -.4
4.9 1.0 .5 1.3 1.4 .0 .9 1.4 .5 .3 1.5 .9 1.3
1.8 1.8 -.4 2.0 .6 .9 -.5 .2 1.4 .9 .9 .7 .6 .5 1.0 1.5 .8 1.0 1.1 1.5 2.0
1.6 .4 1.3 .9 .0 .2 .4 .9 .9 1.6 .2 1.8 1.0 .1 .8 -.1 1.2 .1 .6 1.9 1.8 2.8 2.1 .8 1.5 1.8 1.2
.3 .3 -.8 -.4 .4 -.1 .6 .6 .3 .3 .2 .3 -.3 -.9 .8 1.8 .9 1.9 2.6 2.7 1.5 2.9 1.7 1.5 1.8 .8 .7 -.2
.8 1.2 1.6 1.1 1.8 2.1 -.4 1.0 -.7 .3 4.8 1.5 2.5 .5 1.9 2.6 3.9 2.4 .5 4.3 2.0 4.1 2.2 2.2 .4 3.0 .0 2.0 1.7 .5 .8 -.5 -.6
1.3 2.7 1.0 1.9 3.6 -.5 .0 3.8 2.9 2.1 1.4 4.9 2.7 .1 .1 .0 .4 1.3 -.2 .8 1.0 1.1 1.8 1.4 1.2
.7 1.3 .2 2.2 1.7 2.0 3.3 .9 1.3 .8 1.4 1.1 -.1
.8 .3 .4 1.8 4.3 3.6 2.6 -1.1 .7 -.7 1.1
.9 .5 .3 5.9 1.4 1.7 -1.1 .6 .7 .9 1.2
1.9 1.9 5.2 .4 1.2 1.4 1.3 .7 .9 1.6
1.0 1.3 1.3 1.3 1.2 1.7 1.2 2.0
-.5 -.1 2.0 .9

AIRCRAFT : RMS O-B VECTOR (M/S) BETWEEN 70 AND 500 HPA FIGURE 7
FEBRUARY 1995
OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT

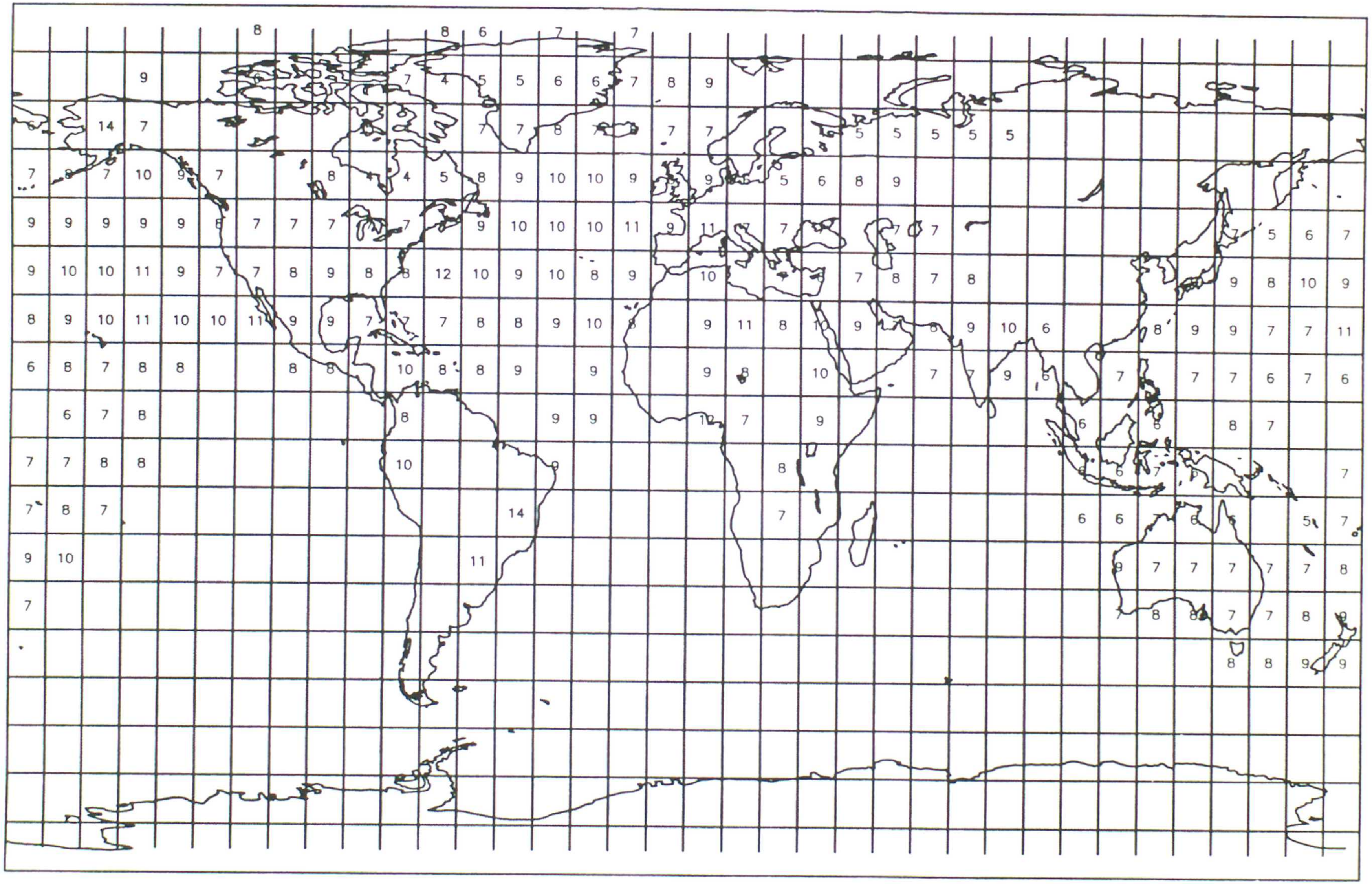


TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: February, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 30.0 hPa

Element monitored :GEOPOTENTIAL HEIGHT IN metres

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

:NUM LEVELS :Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.1

SELECTION CRITERIA :≥ 3 levels with ≥ 10 observations and ≥ 100 m weighted RMS.

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
33791	00	Z	850	43/ 33	23	1	29.1	-35.5	45.9	8
41594	00	Z	400	32/ 73	11	3	56.0	-30.8	63.9	4
42027	00	Z	300	34/ 75	17	0	69.8	22.1	73.2	4
42101	00	Z	150	30/ 76	11	0	99.2	-71.0	122.0	5
42182	12	Z	30	29/ 77	11	0	93.4	172.3	196.0	4
42314	00	Z	200	27/ 95	14	1	106.6	-70.9	128.1	5
42314	12	Z	150	27/ 95	9	1	94.6	-116.6	150.1	6
42339	00	Z	200	26/ 73	20	1	100.8	8.1	101.1	4
42361	00	Z	100	26/ 78	15	1	145.3	-15.8	146.2	7
42361	12	Z	200	26/ 78	22	0	99.3	-29.9	103.7	7
42369	00	Z	150	27/ 81	17	0	104.7	66.2	123.9	7
42369	12	Z	200	27/ 81	16	1	102.9	16.0	104.1	6
42379	00	Z	250	27/ 83	19	0	78.0	-34.2	85.2	8
42379	12	Z	30	27/ 83	10	0	178.0	64.2	189.2	8
42397	00	Z	400	27/ 88	20	0	64.5	-22.2	68.2	5
42397	12	Z	150	27/ 88	10	0	93.4	-56.5	109.2	5
42410	00	Z	100	26/ 92	15	0	128.0	67.7	144.8	5
42410	12	Z	50	26/ 92	10	0	168.4	30.7	171.2	8
42492	12	Z	200	26/ 85	16	1	94.6	-50.8	107.4	5
42647	00	Z	100	23/ 73	11	0	122.3	-108.5	163.4	5
42647	12	Z	50	23/ 73	10	1	144.1	115.6	184.7	6
42701	00	Z	150	23/ 85	11	0	100.9	-106.8	147.0	4
42724	00	Z	150	24/ 91	11	1	120.1	30.8	124.0	5
42809	12	Z	100	23/ 88	15	1	130.9	-2.7	130.9	4
42867	00	Z	30	21/ 79	11	1	106.5	216.6	241.4	5
42971	00	Z	30	20/ 86	17	0	183.4	110.5	214.1	7
42971	12	Z	100	20/ 86	23	0	114.5	58.2	128.4	9
43014	00	Z	250	20/ 75	20	2	82.4	-41.6	92.3	5
43014	12	Z	200	20/ 75	15	2	94.7	60.5	112.3	6
43128	00	Z	100	17/ 78	22	0	136.1	-49.6	144.9	7
43128	12	Z	50	17/ 78	18	1	174.0	96.9	199.2	9
43185	00	Z	50	16/ 81	13	0	128.6	100.4	163.2	4
43185	12	Z	50	16/ 81	11	0	108.5	161.8	194.8	8
43279	00	Z	150	13/ 80	27	0	71.7	-87.0	112.7	5
43285	00	Z	70	13/ 75	14	1	148.7	10.4	149.0	6
43285	12	Z	50	13/ 75	16	0	193.0	135.8	236.0	7
43295	12	Z	150	13/ 78	21	0	77.8	109.2	134.1	5
43333	12	Z	250	12/ 93	11	0	85.5	-9.5	86.0	4
43346	00	Z	50	11/ 80	10	1	190.9	-14.3	191.5	5
43346	12	Z	100	11/ 80	18	1	143.4	35.2	147.7	6
43353	00	Z	70	10/ 76	10	0	104.4	-178.1	206.4	5
43353	12	Z	100	10/ 76	17	1	134.0	75.4	153.7	4
43369	00	Z	100	8/ 73	19	0	124.1	-118.6	171.7	7
43369	12	Z	150	8/ 73	23	0	97.0	-55.3	111.6	7
43371	00	Z	50	8/ 77	17	1	132.0	-139.8	192.2	7
43371	12	Z	70	8/ 77	12	0	176.1	41.9	181.0	7
44277	00	Z	200	46/ 96	11	0	39.2	155.7	160.6	4
48820	00	Z	100	21/ 106	20	0	66.7	116.4	134.2	4
60360	12	Z	500	37/ 8	2	13	5.0	-143.0	143.1	8
62306	12	Z	70	31/ 27	12	5	43.5	314.5	317.5	9
62378	12	Z	70	30/ 31	9	2	58.4	217.8	225.5	5
72274	00	Z	50	32/ -111	26	0	60.4	149.1	160.9	4
82332	12	Z	30	-3/ -60	21	0	35.2	231.1	233.8	4
96163	00	Z	150	-1/ 100	19	0	132.2	-21.6	134.0	8
96237	00	Z	100	-2/ 106	19	0	104.7	116.8	156.9	6

AVAILABILITY – TEMP – 500 HPA GEOPOTENTIAL – FEBRUARY 1995

FIGURE 8

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1271

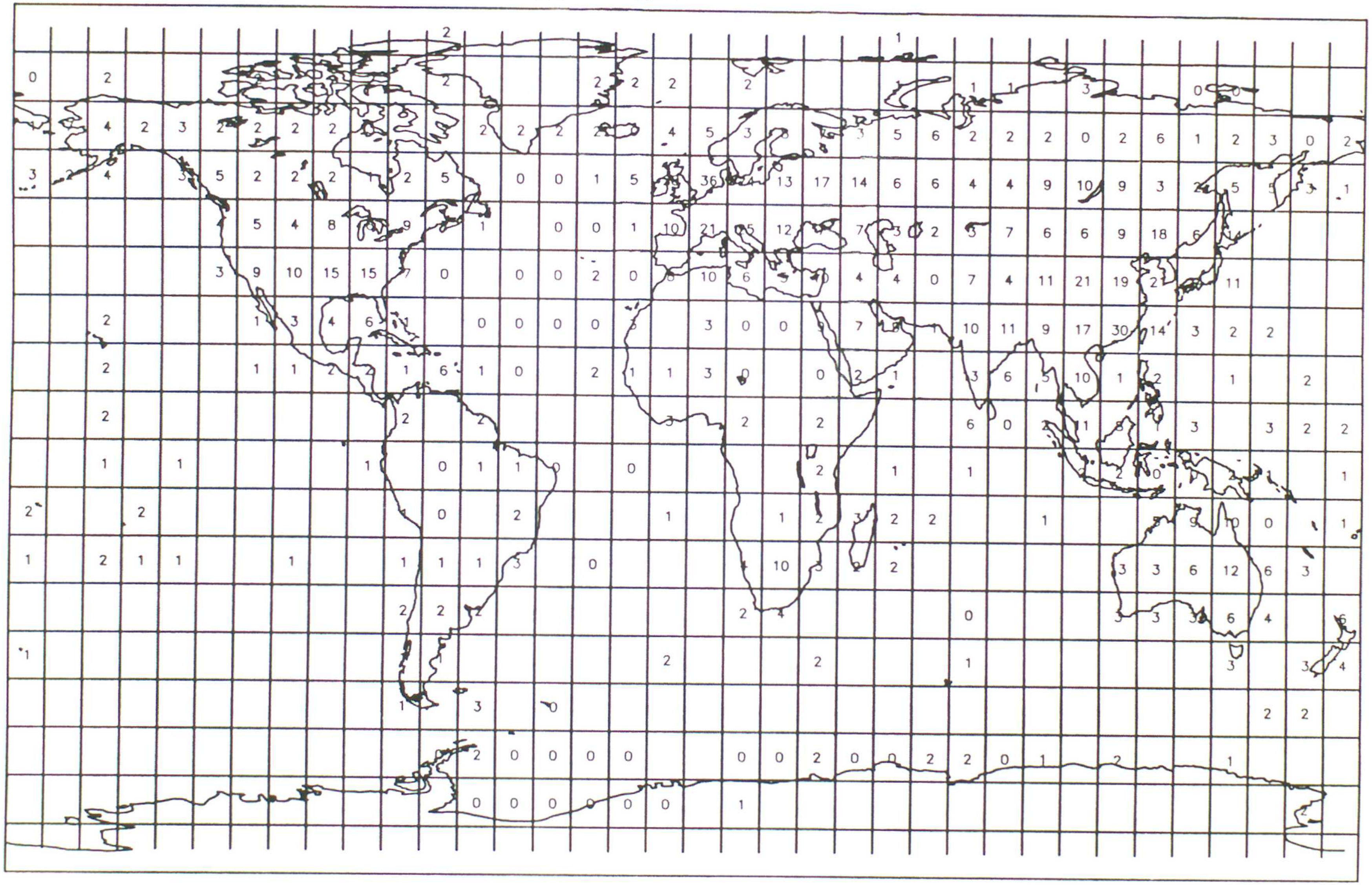


TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:February, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 100.0 hPa

Element monitored :VECTOR WIND in m s^{-1}

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:UBIAS,VBIAS :Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

:NUM LEVELS :Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.2

SELECTION CRITERIA :≥ 10 observations and ≥ 15 m s^{-1} RMS vector wind.

ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	% REJ	UBIAS	VBIAS	RMS	LEVELS
41530	00	V	200	34/ 72	12	0	8	3.8	1.7	22.5	3
41780	00	V	200	25/ 67	19	0	5	-12.4	-1.2	17.7	4
42101	00	V	200	30/ 76	13	0	7	-3.0	-3.0	15.4	1
42101	12	V	250	30/ 76	16	0	12	-2.2	0.6	15.9	1
42182	00	V	200	29/ 77	25	0	16	-5.7	1.0	18.5	3
42182	12	V	150	29/ 77	12	0	25	-11.3	-2.7	18.0	2
42339	12	V	150	26/ 73	14	0	7	-6.6	-11.0	15.3	1
42361	12	V	300	26/ 78	10	0	10	10.8	-2.2	16.5	1
42369	00	V	150	27/ 81	17	0	11	-14.1	6.1	20.7	4
42369	12	V	200	27/ 81	15	0	6	-13.9	7.0	19.9	3
42379	12	V	250	27/ 83	10	0	0	-15.6	6.3	18.5	2
42397	00	V	250	27/ 88	12	0	33	-19.9	11.1	23.0	2
42397	12	V	250	27/ 88	11	0	27	-22.4	4.5	25.7	3
42410	12	V	300	26/ 92	11	0	9	-11.7	3.2	19.4	1
42492	00	V	200	26/ 85	16	0	6	7.3	0.9	16.8	1
42867	00	V	250	21/ 79	23	0	13	-0.3	6.4	16.3	1
43041	00	V	300	19/ 82	15	0	6	3.7	0.9	16.1	1
47058	12	V	300	39/ 126	11	0	9	-2.2	-1.4	16.5	1
56691	00	V	150	27/ 104	13	0	30	8.8	9.0	23.4	5
56691	12	V	200	27/ 104	18	2	25	17.1	7.7	21.0	3
58968	00	V	300	25/ 122	28	0	7	4.8	-1.5	15.8	1
72247	12	V	150	32/ -95	12	0	8	10.6	5.9	16.7	1
80413	12	V	100	10/ -68	19	0	21	-4.8	-5.1	17.5	1
89662	12	V	400	-75/ 164	13	0	23	0.1	-10.6	16.0	2

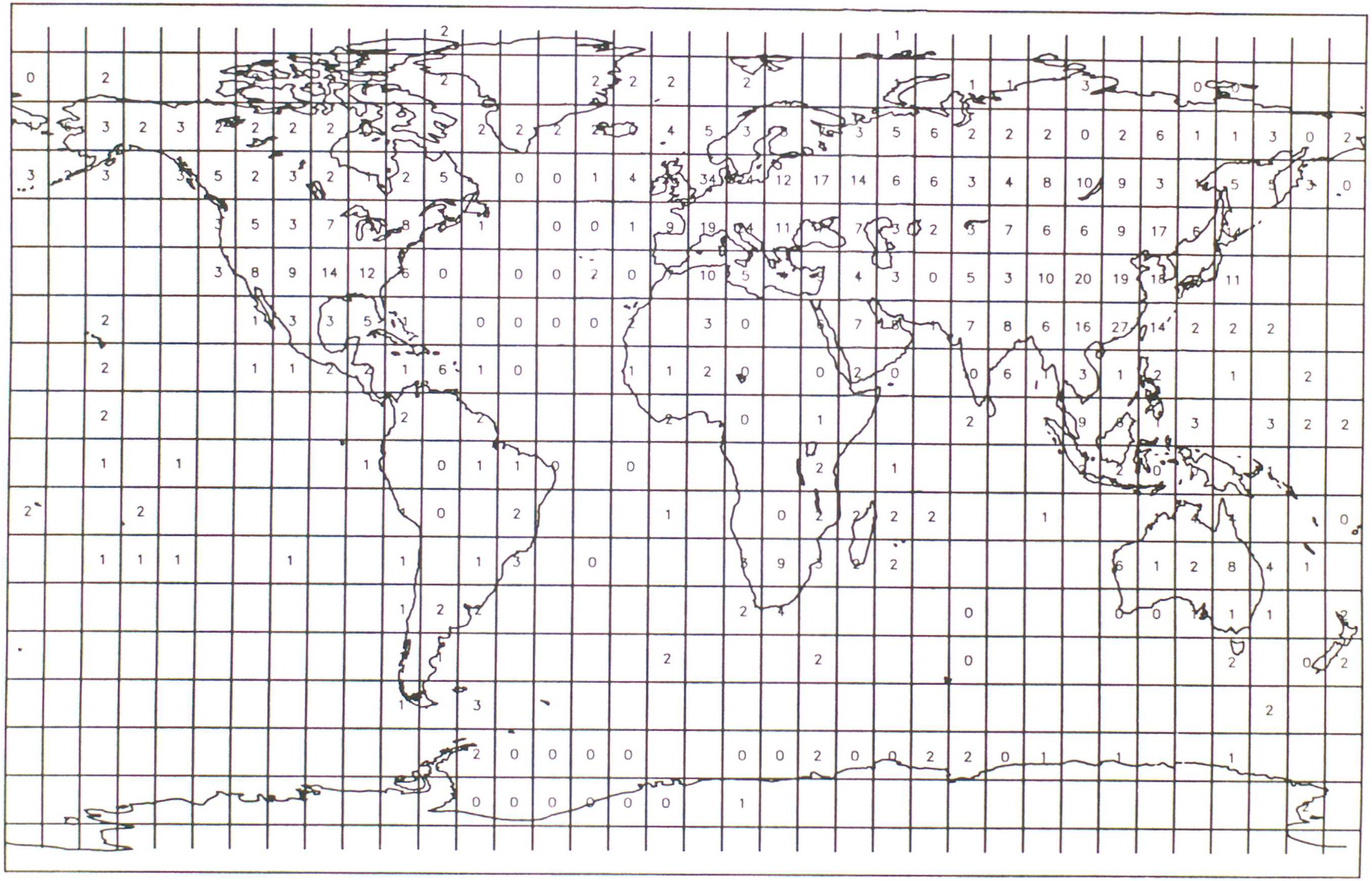
AVAILABILITY – TEMP/PILOT – 300 HPA WIND – FEBRUARY 1995

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1095

FIGURE 9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3 5 3 7 8 1 0 0 1 9 19 4 11 7 3 2 5 7 6 6 9 17 6 4
3 8 9 14 12 6 0 0 0 2 0 7 10 5 4 3 0 5 3 10 20 19 18 11
2 1 3 3 5 1 0 0 0 0 2 3 0 6 7 8 1 7 8 6 16 27 14 2 2 2
2 1 1 2 2 1 6 1 0 1 1 2 0 0 2 0 0 6 1 3 1 2 1 2
2 2 2 2 0 1 2 9 8 3 3 2 2
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2 2 1 0 2 1 0 2 2 2 2 1 4 0
1 1 1 1 1 1 3 0 3 9 3 2 2 6 1 2 8 4 1
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1 2 2 0 2 0 2
1 3 2
2 0 0 0 0 0 0 2 0 0 2 2 0 1 1 1
0 0 0 0 0 0 1 2

TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:February, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 500.0 - 150.0 hPa

Element monitored :WIND DIRECTION in degrees

Parameters monitored

:NUM OBS :Average number of observations at all levels.

:BIAS :Mean difference of observations from background values from all levels.

:MAX SPREAD :(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels

:SD :SD of difference of observations from background values at all levels.

SELECTION CRITERIA :NUM OBS $\geq$ 5, and

ABSOLUTE BIAS $\geq$ 10°, with
SD < 30°, and
MAX SPREAD < 10°

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
17280	12	DD	38/ 40	21	-10.1	8.4	13.3
24641	00	DD	64/ 122	17	15.4	7.3	15.3
32618	00	DD	55/ 166	18	10.2	4.8	13.5
42314	12	DD	27/ 95	11	-11.3	7.4	11.9
42339	00	DD	26/ 73	21	16.9	2.8	7.8
42339	12	DD	26/ 73	20	16.3	4.7	8.9
42397	00	DD	27/ 88	12	-12.8	7.0	11.5
48698	12	DD	1/ 104	18	-10.8	8.7	16.8
53772	00	DD	38/ 113	26	-11.1	5.3	9.1
53772	12	DD	38/ 113	27	-11.8	4.6	8.5
58606	00	DD	29/ 116	23	-13.7	3.5	6.7
58606	12	DD	29/ 116	24	-12.8	1.7	6.3
60571	00	DD	32/ -2	19	13.7	5.6	18.9
60571	12	DD	32/ -2	22	10.3	7.0	18.1
60630	12	DD	27/ 2	18	11.8	7.4	15.5
67083	12	DD	-19/ 47	11	10.9	9.3	24.6
78866	12	DD	18/ -63	14	17.1	6.9	17.2
81405	12	DD	5/ -52	17	-16.1	9.3	27.6
83840	12	DD	-26/ -49	17	-19.4	8.4	26.0
96935	00	DD	-7/ 113	14	11.6	8.1	29.1

MONITORING OF SATELLITE WINDS

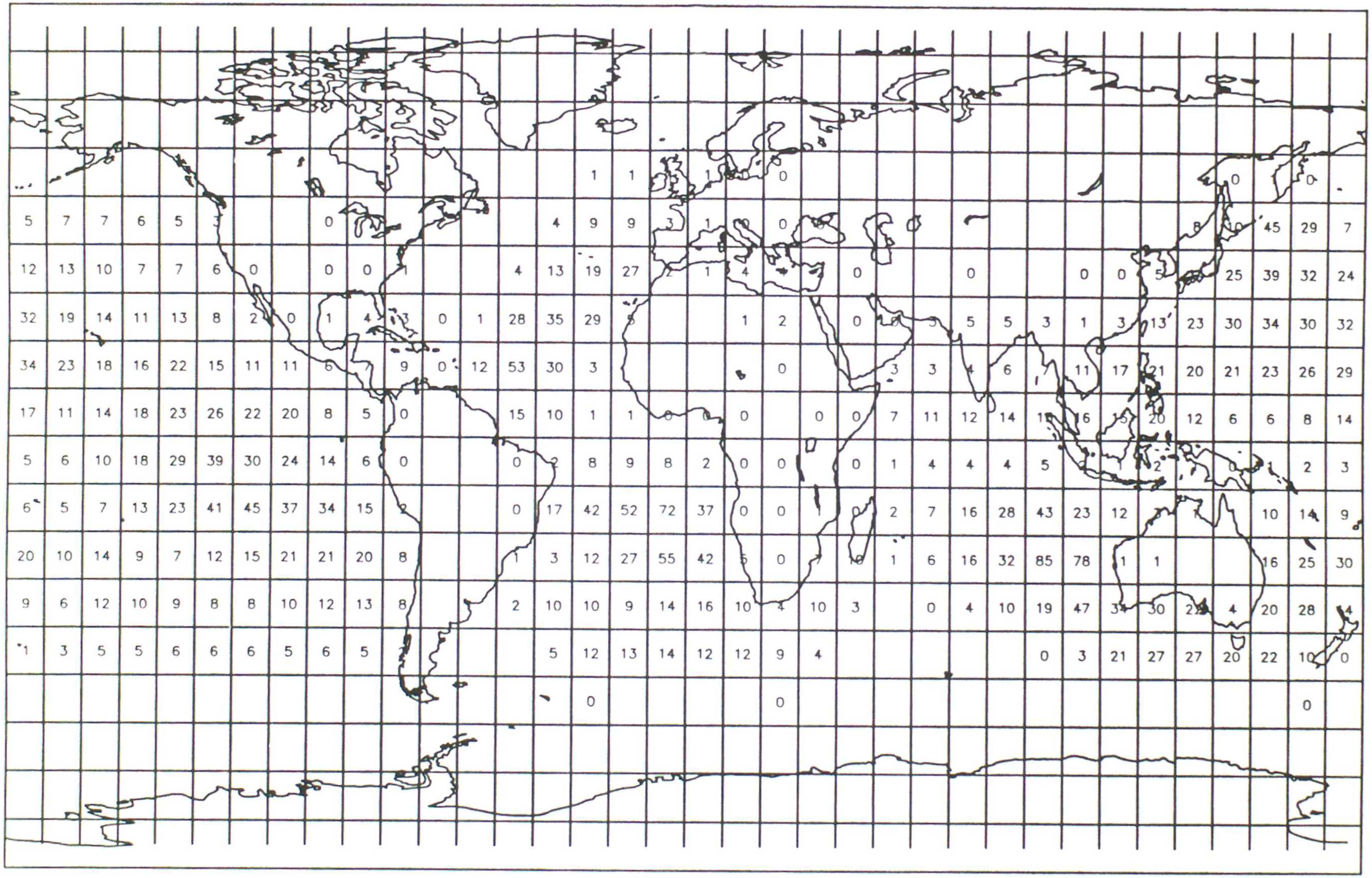
MONITORING CENTRE: BRACKNELL

MONTH:February, 95

Monitoring procedures

Period	:One calendar month.
Data monitored	:Reports from GOES, METEOSAT, GMS, INSAT.
Standard of comparison	:Background field from Bracknell global model.
Selection Criteria	:number of observations > 10.
Data Extracted	:Layer:701 - 1000 hPa 401 - 700 hPa 101 - 400 hPa
	:Mean wind
	:Mean observation minus background vector wind differences
	:Mean observation minus background speed differences
	:RMS of observation minus background vector differences

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 701 AND 1000 HPA FIGURE 10
FEBRUARY 1995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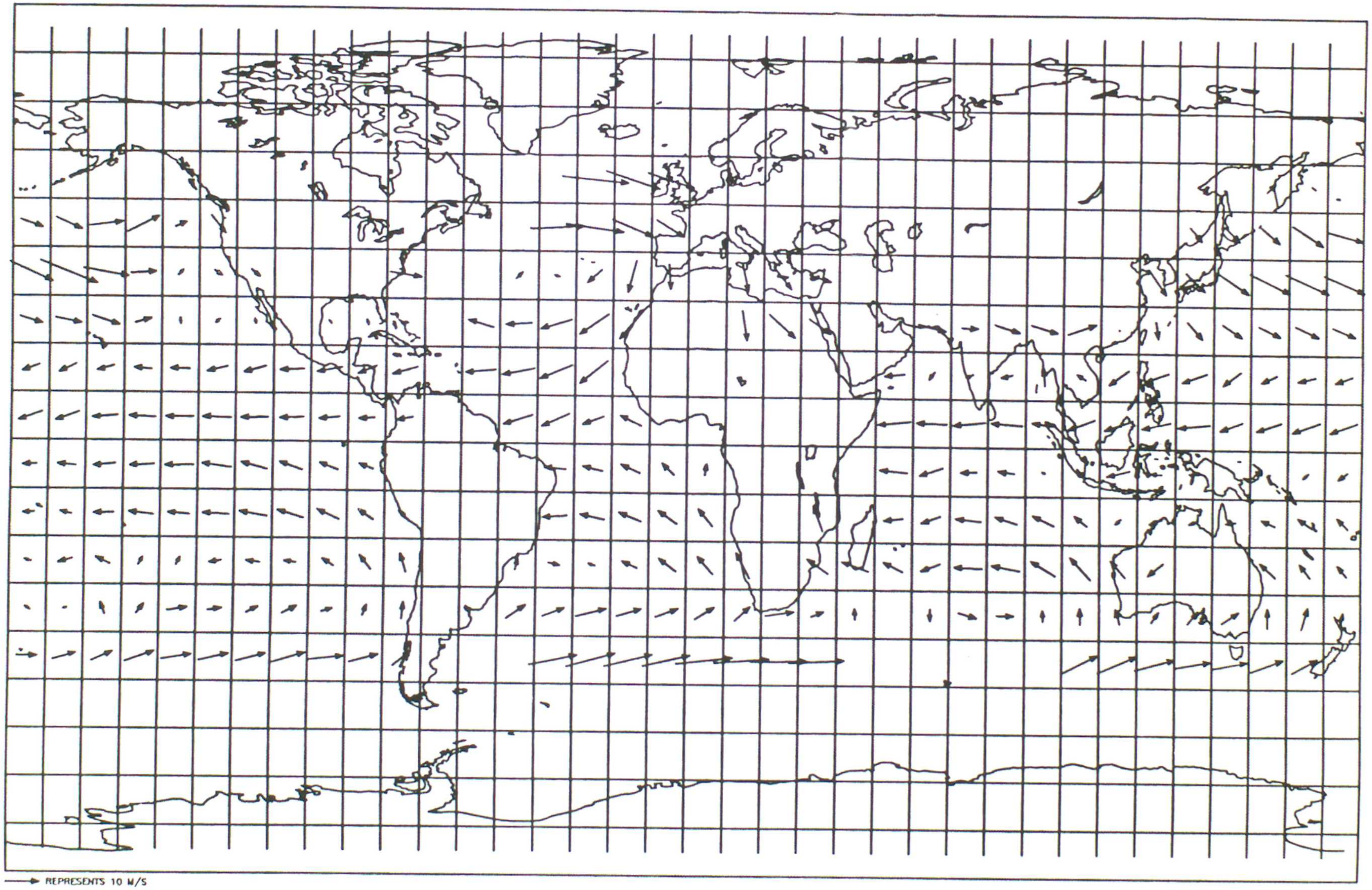
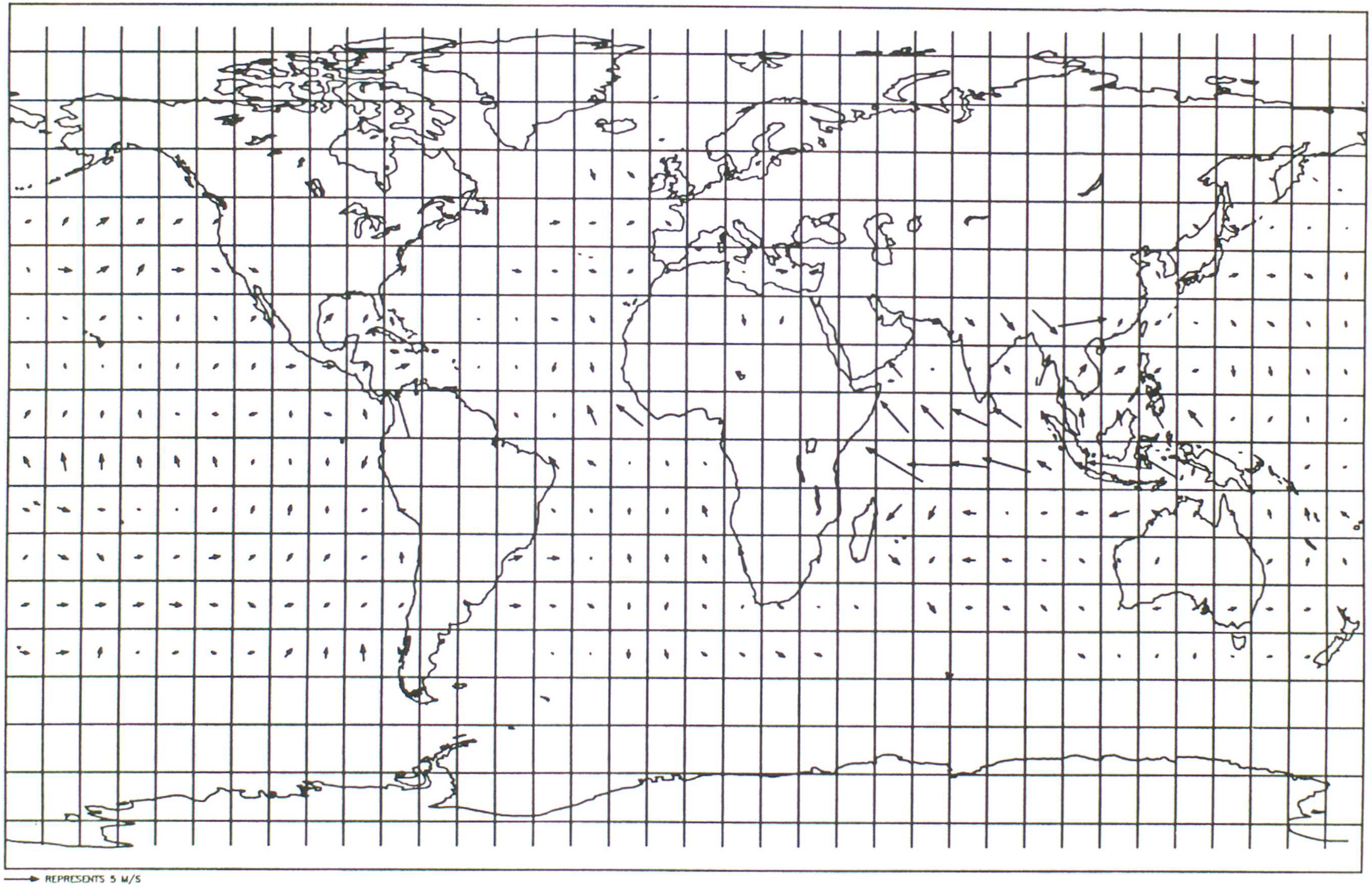
12 13 10 7 7 6 0 0 0 1 4 13 19 27 2 1 4 2 0 0 0 0 5 25 39 32 24
32 19 14 11 13 8 2 0 1 4 3 0 1 28 35 29 5 1 2 0 0 3 5 5 3 1 3 13 23 30 34 30 32
34 23 18 16 22 15 11 11 6 7 9 0 12 53 30 3 0 3 3 4 6 7 11 17 21 20 21 23 26 29
17 11 14 18 23 26 22 20 8 5 0 15 10 1 1 0 0 0 0 0 7 11 12 14 15 16 15 20 12 6 6 8 14
5 6 10 18 29 39 30 24 14 6 0 0 2 8 9 8 2 0 0 0 1 4 4 4 5 2 1 2 0 1 2 3
6 5 7 13 23 41 45 37 34 15 2 0 17 42 52 72 37 0 0 1 0 2 7 16 28 43 23 12 3 1 10 14 9
20 10 14 9 7 12 15 21 21 20 8 1 3 12 27 55 42 5 0 7 10 1 6 16 32 85 78 1 1 16 25 30
9 6 12 10 9 8 8 10 12 13 8 2 10 10 9 14 16 10 4 10 3 0 4 10 19 47 34 30 22 4 20 28 14
1 3 5 5 6 6 6 5 6 5 5 12 13 14 12 12 9 4 0 3 21 27 27 20 22 10 0
0 0 0

SATOB VECTOR MEAN WINDS BETWEEN 701–1000 HPA
FEBRUARY 1995
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

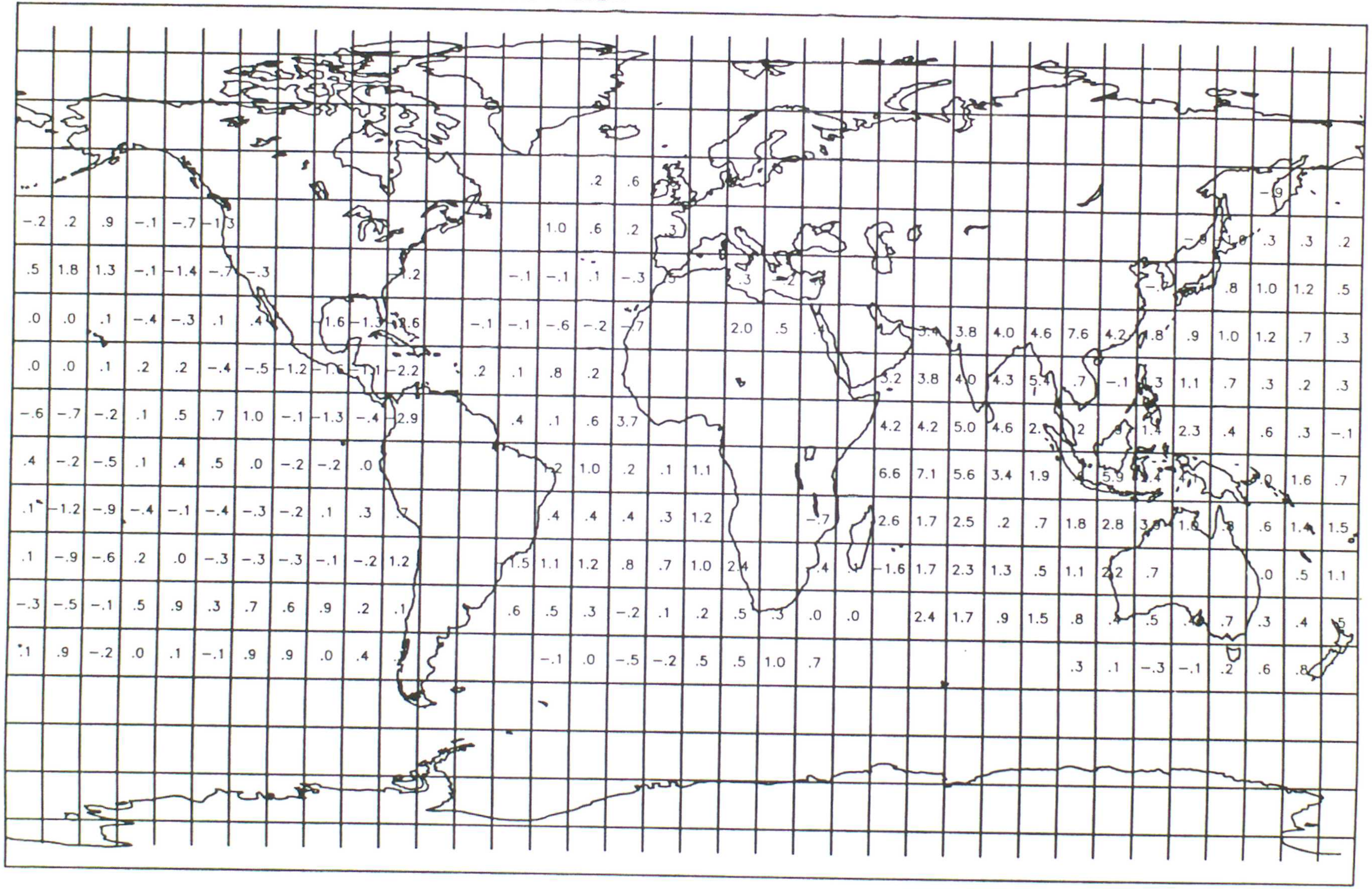
FIGURE 11


REPRESENTS 10 M/S

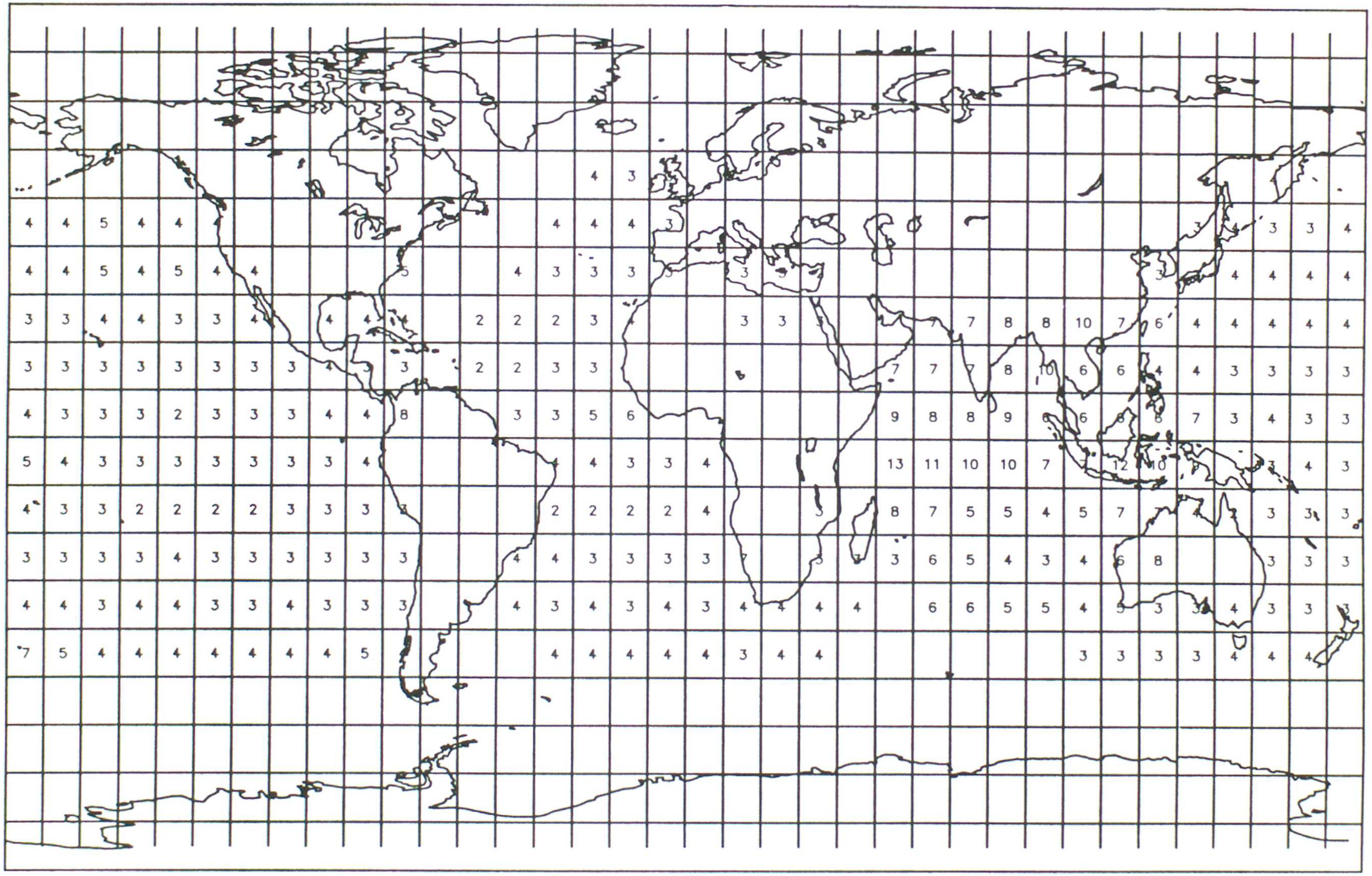
SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 701-1000 HPA FIGURE 12
FEBRUARY 1995
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT



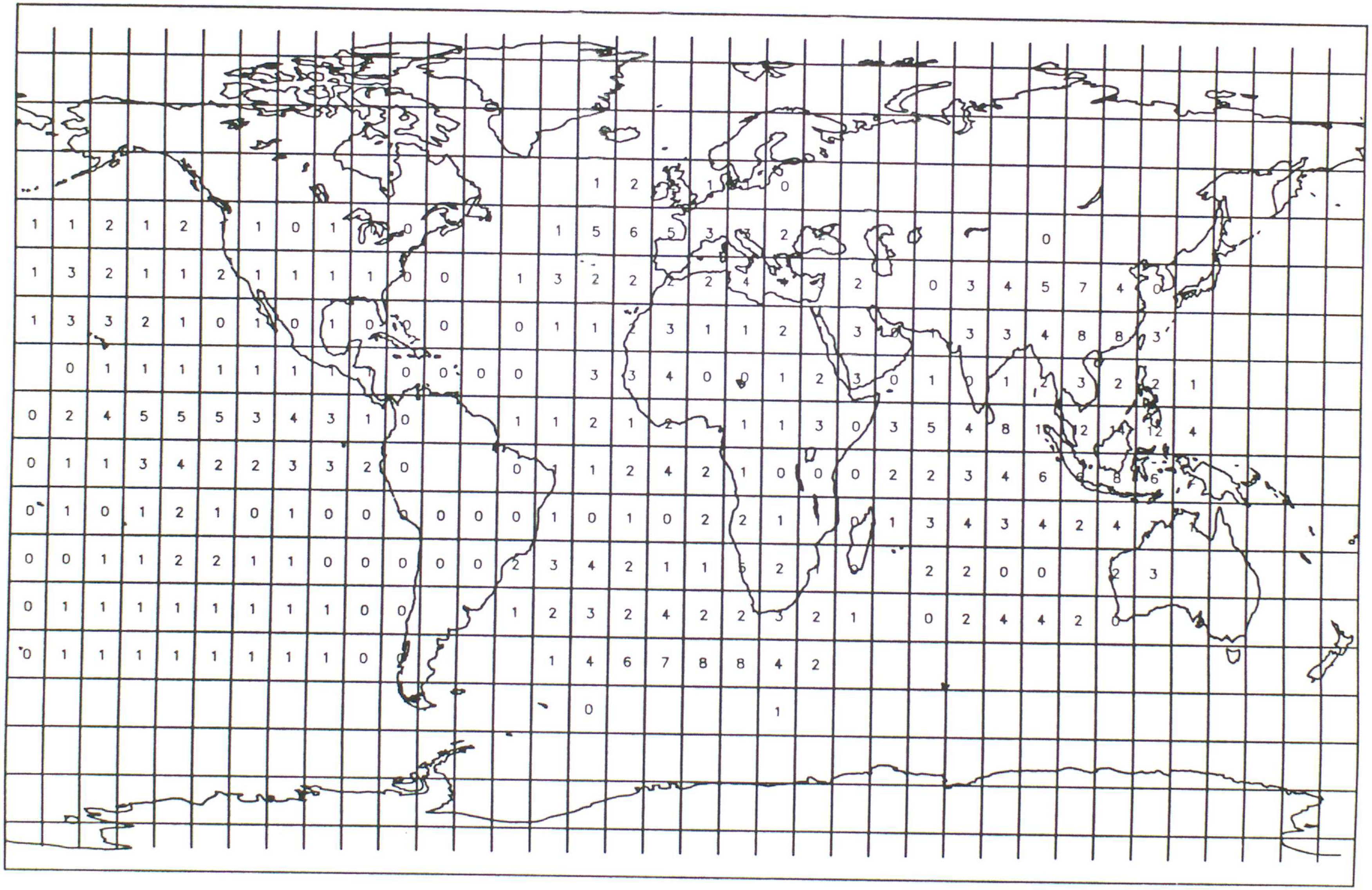
SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 13
FEBRUARY 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT



SATOBS : RMS O–B VECTOR DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 14
FEBRUARY 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


4 3
4 4 5 4 4 4 4 4 3 3 4 3 3 4
4 4 5 4 5 4 4 5 4 3 3 3 3 3 3 4 4 4 4
3 3 4 4 3 3 4 4 4 4 2 2 2 3 3 3 3 7 7 8 8 10 7 6 4 4 4 4 4
3 3 3 3 3 3 3 3 4 3 3 2 2 3 3 7 7 7 8 10 6 6 4 4 3 3 3 3
4 3 3 3 2 3 3 3 4 4 8 3 3 5 6 9 8 8 9 6 6 8 6 7 3 4 3 3
5 4 3 3 3 3 3 3 3 4 4 4 3 3 4 13 11 10 10 7 7 12 10 3 3 4 3
4 3 3 2 2 2 2 3 3 3 3 2 2 2 2 4 3 8 7 5 5 4 5 7 7 4 4 3 3 3
3 3 3 3 4 3 3 3 3 3 3 4 4 3 3 3 3 7 3 3 3 6 5 4 3 4 6 8 3 3 3
4 4 3 4 4 3 3 4 3 3 3 4 3 4 3 4 3 4 4 4 4 6 6 5 5 4 5 3 3 4 3 3 3
7 5 4 4 4 4 4 4 4 5 4 4 4 4 4 3 4 4 3 3 3 3 4 4 4

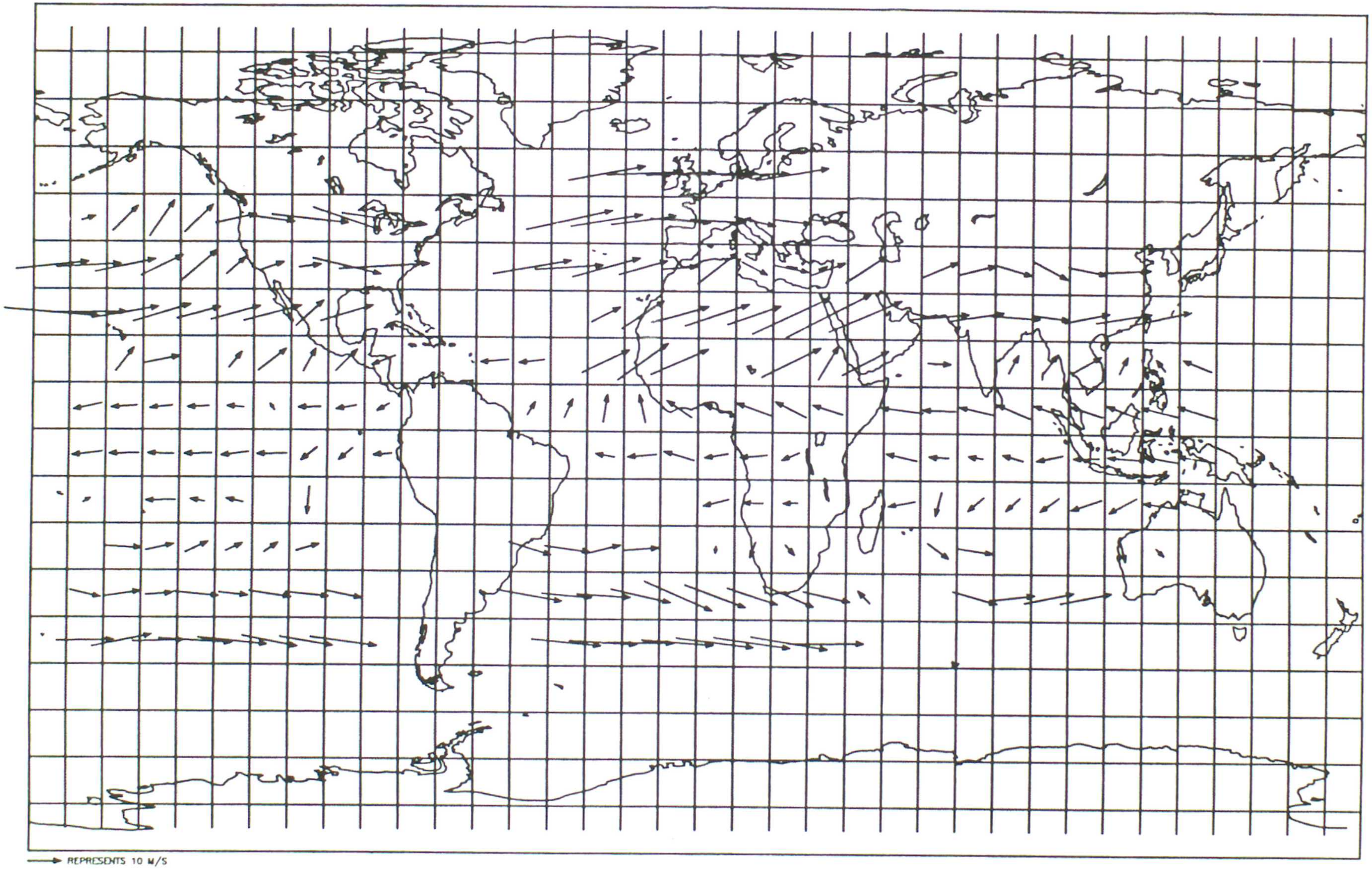
AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 401 AND 700 HPA FIGURE 15
FEBRUARY 1995



1 2 1 0
1 1 2 1 2 1 1 0 1 0 1 5 6 5 3 3 2 0
1 3 2 1 1 2 1 1 1 1 0 0 1 3 2 2 2 2 4 2 0 3 4 5 7 4 0
1 3 3 2 1 0 1 0 1 0 0 0 0 1 1 2 3 1 1 2 2 3 0 1 3 3 4 8 8 3
0 1 1 1 1 1 1 1 0 0 0 0 3 3 4 0 0 1 2 3 0 1 0 1 2 3 2 2 1
0 2 4 5 5 5 3 4 3 1 0 1 1 2 1 2 1 1 3 0 3 5 4 8 10 12 14 12 4
0 1 1 3 4 2 2 3 3 2 0 0 1 1 2 4 2 1 0 0 0 2 2 3 4 6 8 6
0 1 0 1 2 1 0 1 0 0 0 0 0 0 1 0 1 0 2 2 1 1 0 1 3 4 3 4 2 4
0 0 1 1 2 2 1 1 0 0 0 0 0 2 3 4 2 1 1 5 2 2 2 0 0 2 3
0 1 1 1 1 1 1 1 1 0 0 1 2 3 2 4 2 2 3 2 1 0 2 4 4 2 0
0 1 1 1 1 1 1 1 1 0 0 1 4 6 7 8 8 4 2
0 1

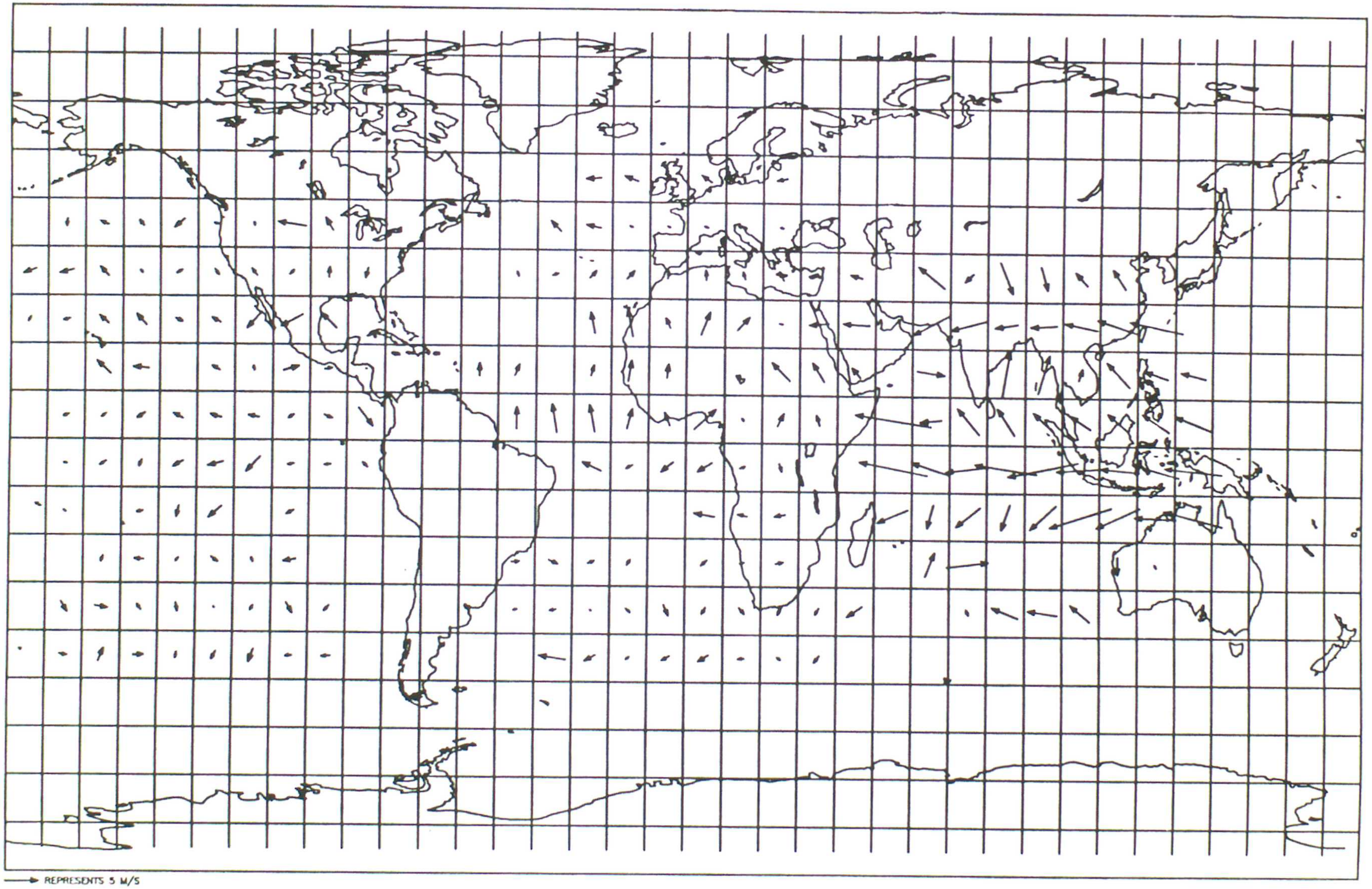
SATOB VECTOR MEAN WINDS BETWEEN 401–700 HPA
FEBRUARY 1995
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 16

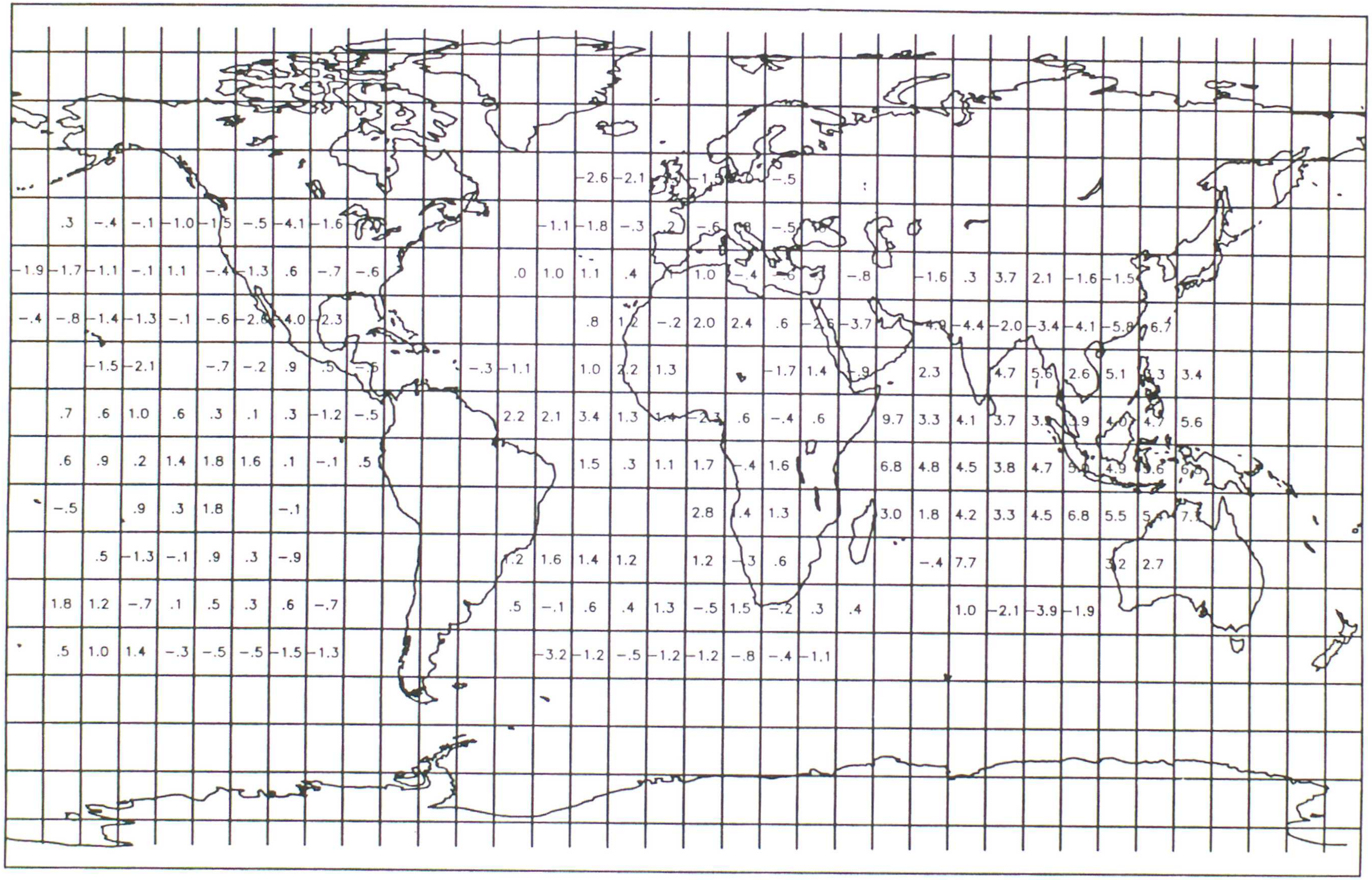

→ REPRESENTS 10 M/S

SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 401–700 HPA
FEBRUARY 1995
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

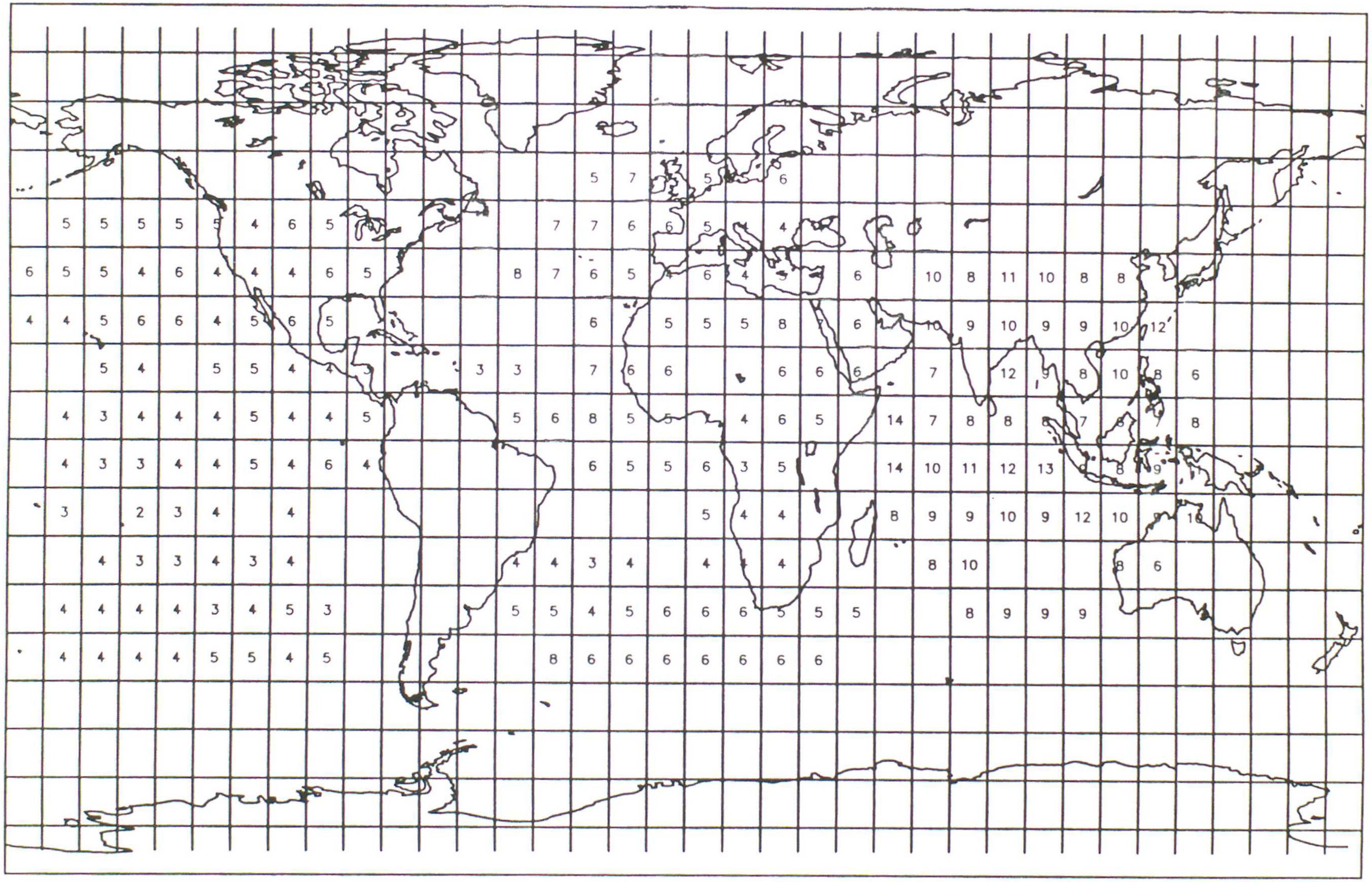
FIGURE 17



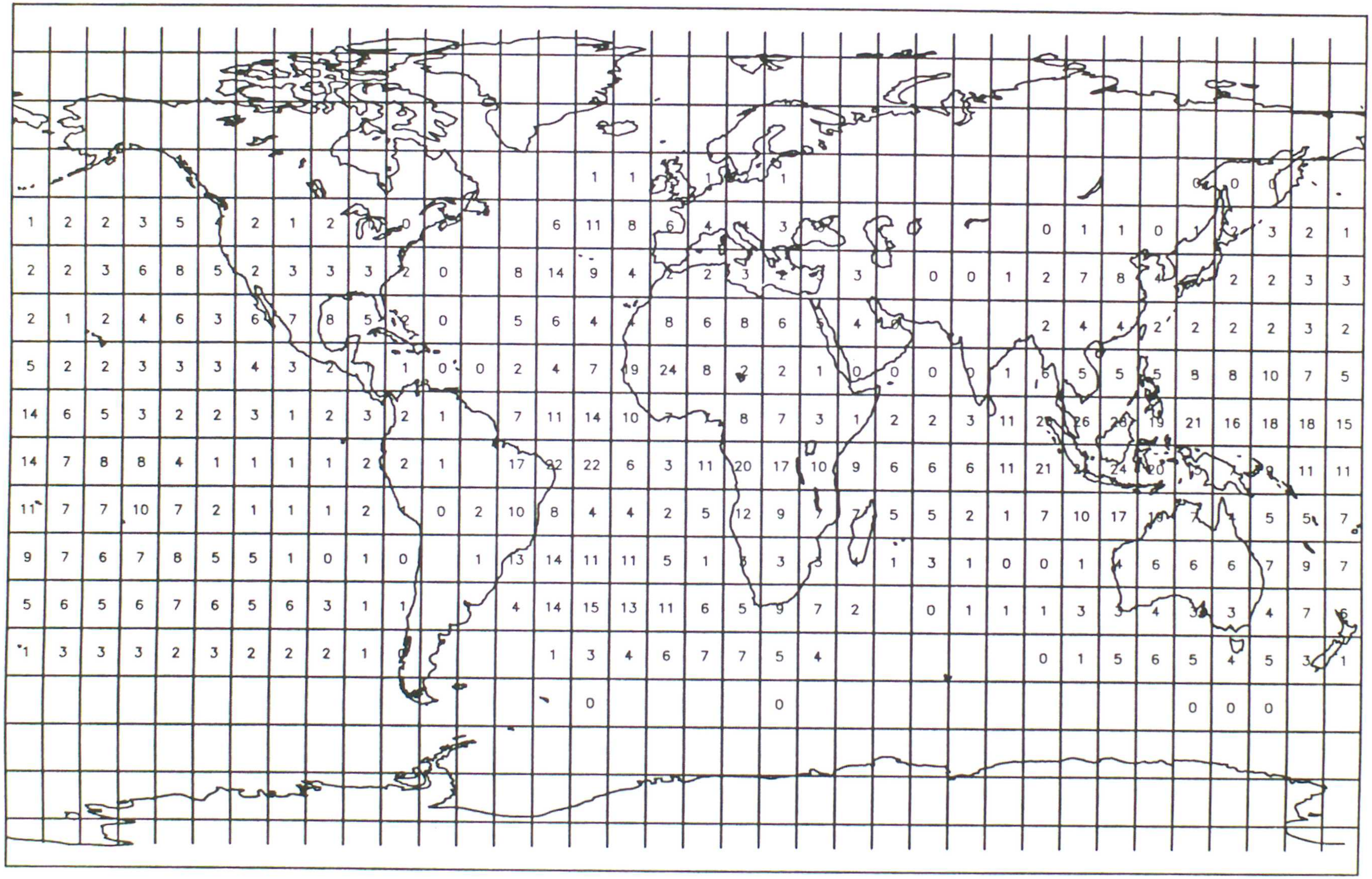
SATOBS : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 18
FEBRUARY 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


-2.6 -2.1 -1.5 -.5
.3 -.4 -.1 -1.0 -1.5 -.5 -4.1 -1.6 -1.1 -1.8 -.3 .2 -.6 -.5
-1.9 -1.7 -1.1 -.1 1.1 -.4 -1.3 .6 -.7 -.6 .0 1.0 1.1 .4 1.0 -.4 -.8 -1.6 .3 3.7 2.1 -1.6 -1.5
-.4 -.8 -1.4 -1.3 -.1 -.6 -2.8 -4.0 -2.3 .8 1.2 -.2 2.0 2.4 .6 -2.6 -3.7 -4.4 -2.0 -3.4 -4.1 -5.8 6.7
-1.5 -2.1 -.7 -.2 .9 .5 -.5 -.3 -1.1 1.0 2.2 1.3 -1.7 1.4 -.9 2.3 4.7 5.6 2.6 5.1 3.3 3.4
.7 .6 1.0 .6 .3 .1 .3 -1.2 -.5 2.2 2.1 3.4 1.3 1.4 -2.3 .6 -.4 .6 9.7 3.3 4.1 3.7 3.9 4.0 4.7 5.6
.6 .9 .2 1.4 1.8 1.6 .1 -.1 .5 1.5 .3 1.1 1.7 -.4 1.6 6.8 4.8 4.5 3.8 4.7 5.0 4.9 5.6 6.6
-.5 .9 .3 1.8 -.1 2.8 .4 1.3 3.0 1.8 4.2 3.3 4.5 6.8 5.5 5.4 7.1
.5 -1.3 -.1 .9 .3 -.9 1.2 1.6 1.4 1.2 1.2 -.3 .6 -.4 7.7 3.2 2.7
1.8 1.2 -.7 .1 .5 .3 .6 -.7 .5 -.1 .6 .4 1.3 -.5 1.5 -.2 .3 .4 1.0 -2.1 -3.9 -1.9
.5 1.0 1.4 -.3 -.5 -.5 -1.5 -1.3 -3.2 -1.2 -.5 -1.2 -1.2 -.8 -.4 -1.1

SATOBS : RMS O–B VECTOR DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 19
FEBRUARY 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT

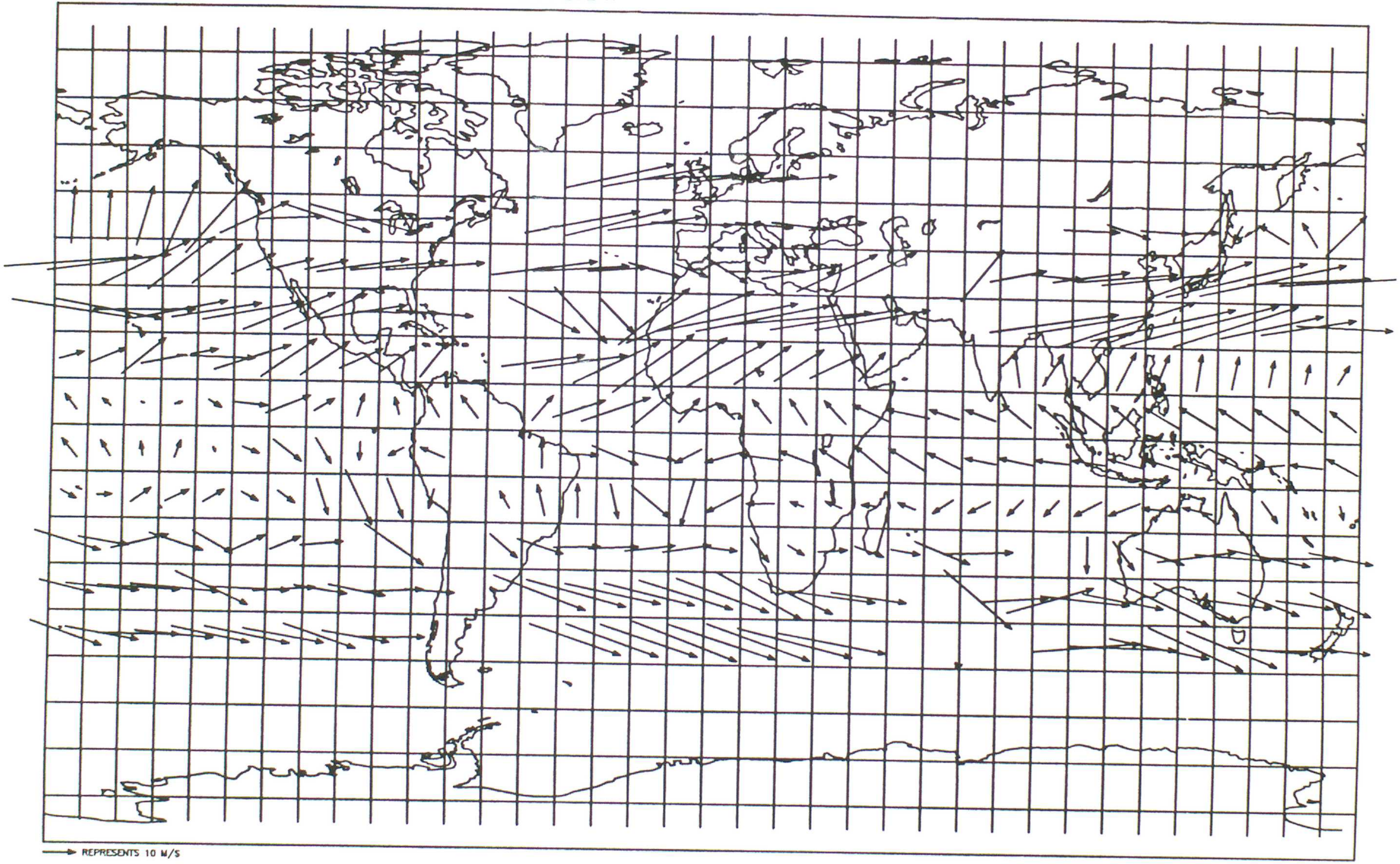

5 7 5 6
5 5 5 5 5 4 6 5 4 7 7 6 6 5 4
6 5 5 4 6 4 4 4 6 5 8 7 6 5 4 6 4 6 10 8 11 10 8 8
4 4 5 6 6 4 5 6 5 6 5 5 5 8 7 6 10 9 10 9 9 10 12
5 4 5 5 4 4 3 3 3 7 6 6 6 6 6 7 12 9 8 10 8 6
4 3 4 4 4 5 4 4 5 5 6 8 5 5 4 6 5 14 7 8 8 8 7 8 7 8
4 3 3 4 4 5 4 6 4 6 5 5 6 3 5 14 10 11 12 13 8 9
3 2 3 4 4 5 4 4 8 9 9 10 9 12 10 9 10
4 3 3 4 3 4 4 4 3 4 4 4 4 8 10 8 6
4 4 4 4 3 4 5 3 5 5 4 5 6 6 6 5 5 5 8 9 9 9
4 4 4 4 5 5 4 5 8 6 6 6 6 6 6 6

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 101 AND 400 HPA FIGURE 20
FEBRUARY 1995


1 1 1 1 0 0 0
1 2 2 3 5 4 2 1 2 0 0 6 11 8 6 4 4 3 0 0 1 1 0 1 2 3 2 1
2 2 3 6 8 5 2 3 3 3 2 0 8 14 9 4 2 2 3 2 3 3 0 0 1 2 7 8 4 2 2 3 3
2 1 2 4 6 3 6 7 8 5 2 0 5 6 4 4 8 6 8 6 5 4 0 2 4 4 2 2 2 2 3 2
5 2 2 3 3 3 4 3 2 1 1 0 0 2 4 7 19 24 8 2 2 1 0 0 0 0 1 6 5 5 5 8 8 10 7 5
14 6 5 3 2 2 3 1 2 3 2 1 7 11 14 10 7 7 8 7 3 1 2 2 3 11 26 26 28 19 21 16 18 18 15
14 7 8 8 4 1 1 1 1 2 2 1 17 22 22 6 3 11 20 17 10 9 6 6 6 11 21 21 24 20 15 9 11 11
11 7 7 10 7 2 1 1 1 2 1 0 2 10 8 4 4 2 5 12 9 7 7 5 5 2 1 7 10 17 19 7 4 5 5 7
9 7 6 7 8 5 5 1 0 1 0 1 13 14 11 11 5 1 3 3 3 4 1 3 1 0 0 1 4 6 6 6 7 9 7
5 6 5 6 7 6 5 6 3 1 1 4 14 15 13 11 6 5 9 7 2 0 1 1 1 3 3 4 3 3 4 7 6
1 3 3 3 2 3 2 2 2 1 0 1 3 4 6 7 7 5 4 0 1 5 6 5 4 5 3 1
0 0 0 0 0

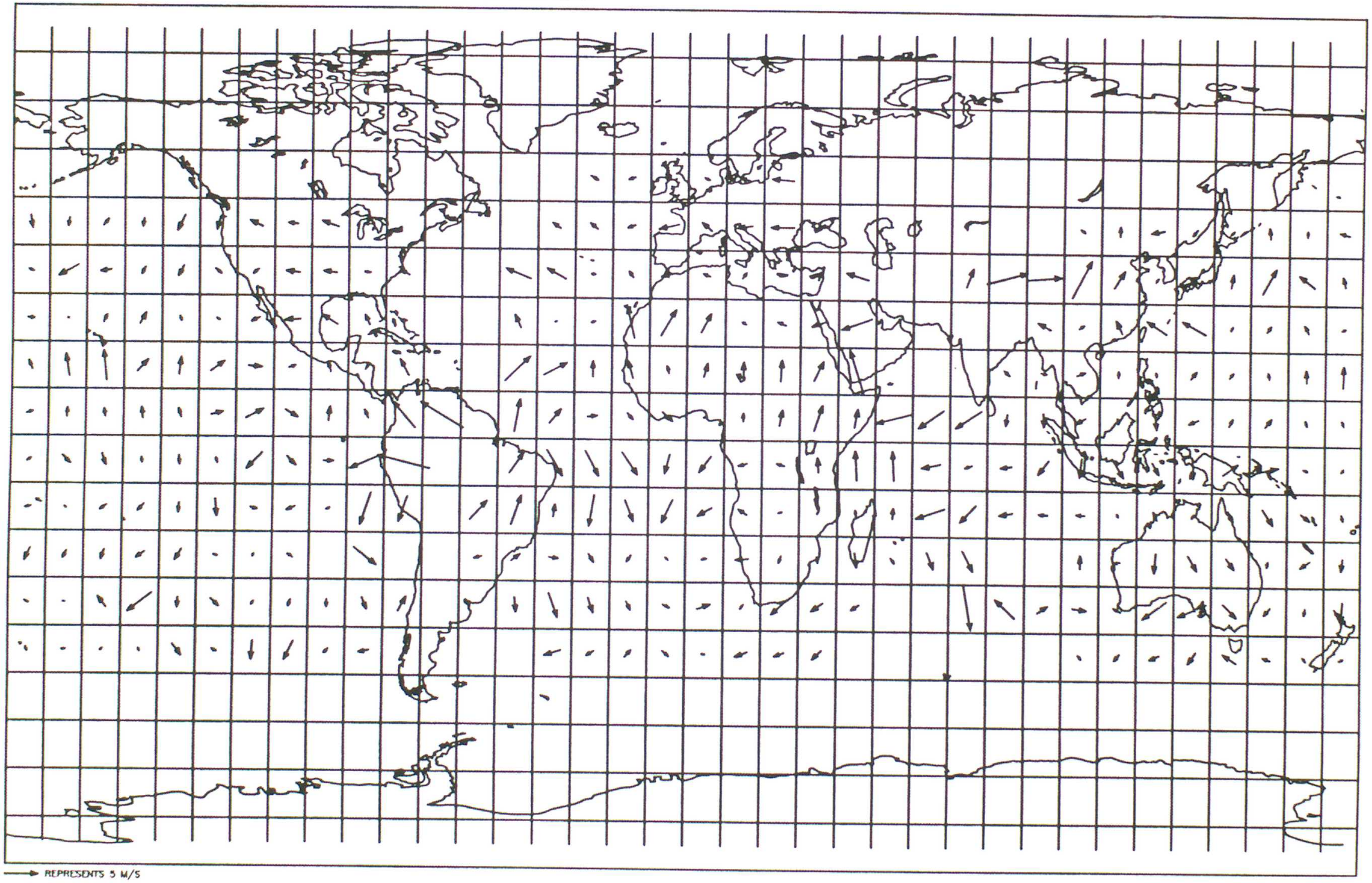
SATOB VECTOR MEAN WINDS BETWEEN 101–400 HPA
FEBRUARY 1995
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 21

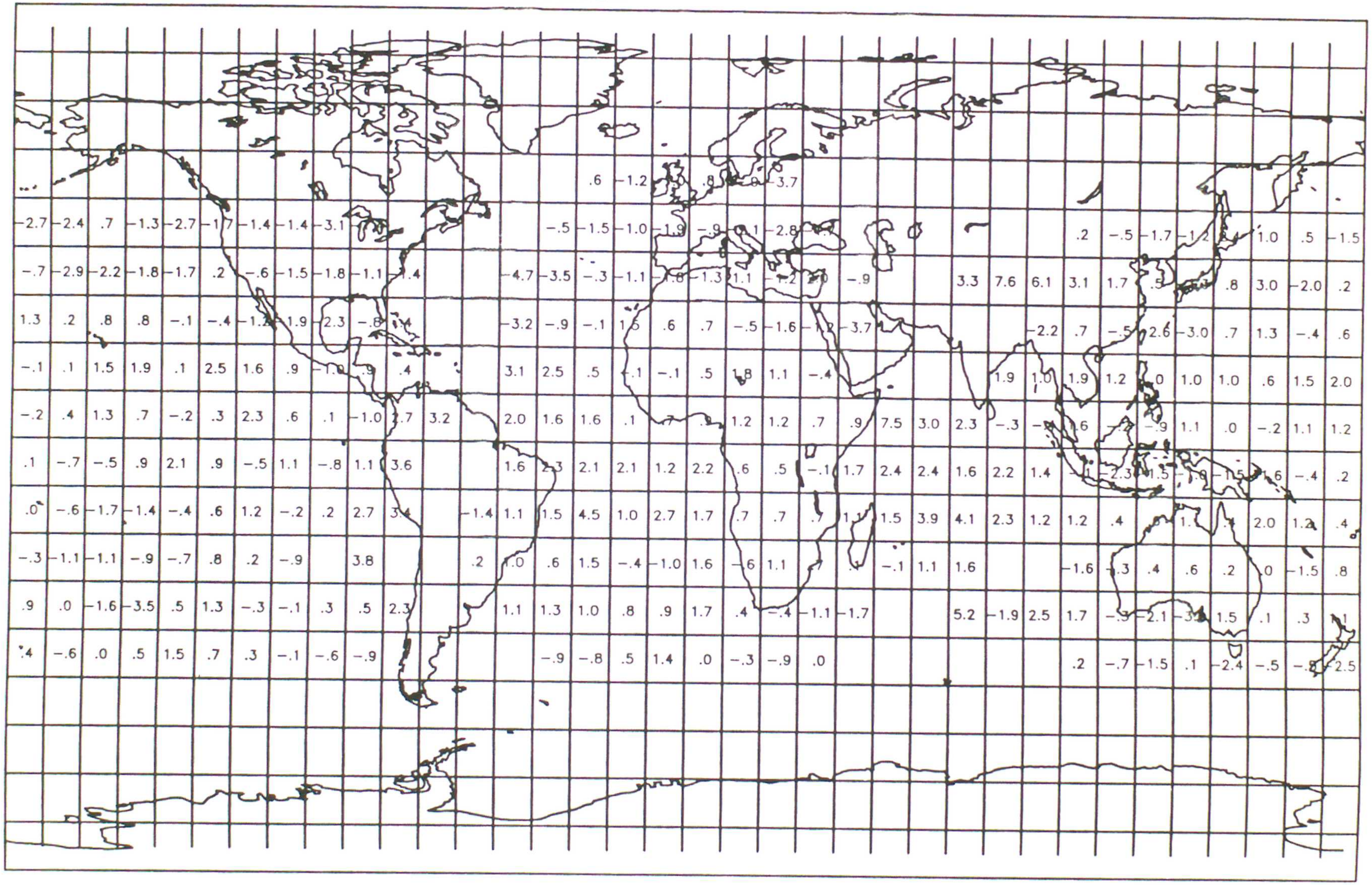

REPRESENTS 10 M/S

SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 101-400 HPA
FEBRUARY 1995
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

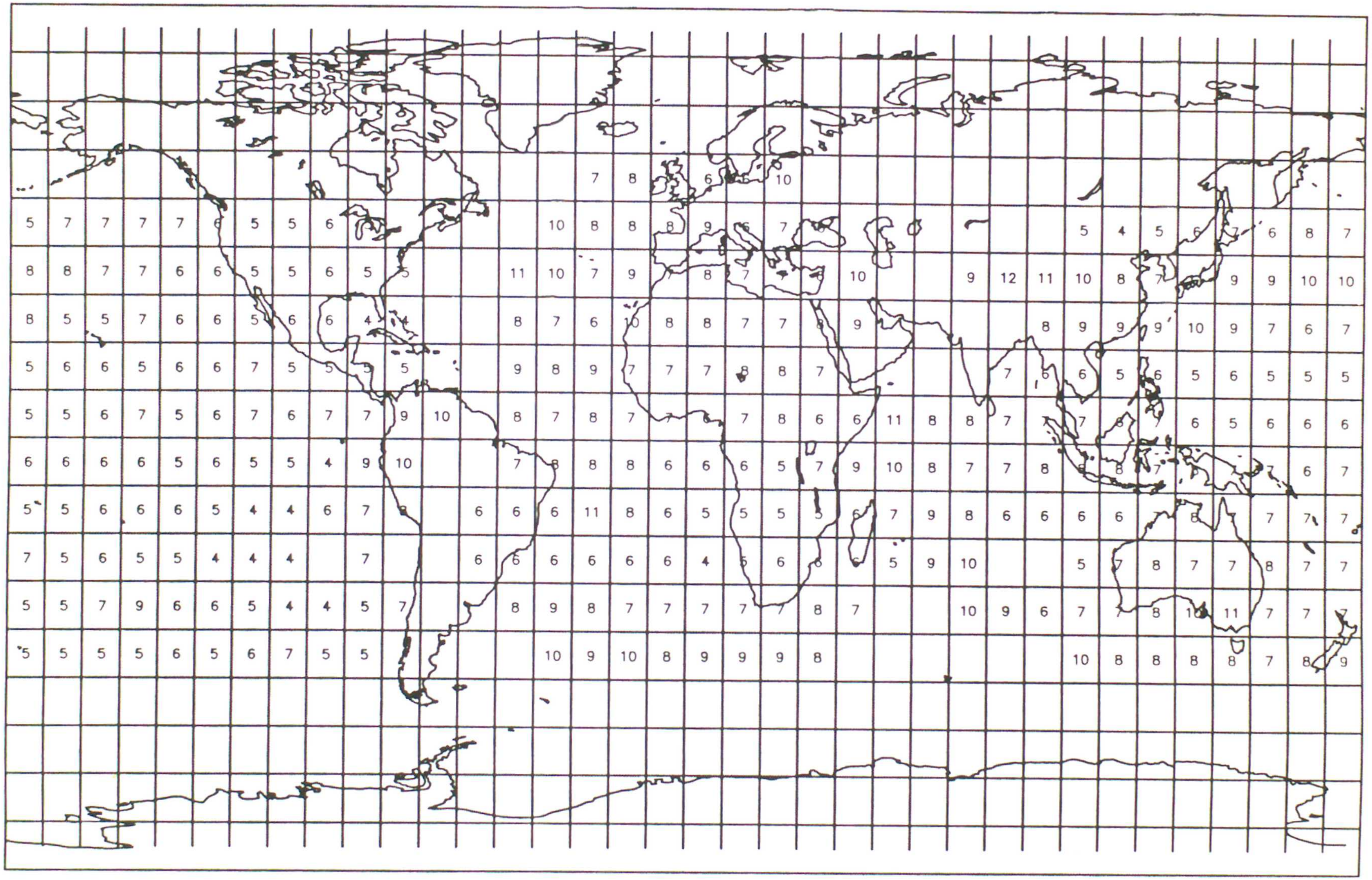
FIGURE 22



SATOBS : MEAN O−B SPEED DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 23
FEBRUARY 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


.6 −1.2 .8 −3.7
−2.7 −2.4 .7 −1.3 −2.7 −1.7 −1.4 −1.4 −3.1 −.5 −1.5 −1.0 −1.9 −.9 .1 −2.8 .2 −.5 −1.7 −1.2 1.0 .5 −1.5
−.7 −2.9 −2.2 −1.8 −1.7 .2 −.6 −1.5 −1.8 −1.1 .4 −4.7 −3.5 −.3 −1.1 −1.8 −1.3 1.1 −1.2 2.0 −.9 3.3 7.6 6.1 3.1 1.7 .5 .8 3.0 −2.0 .2
1.3 .2 .8 .8 −.1 −.4 −1.2 −1.9 2.3 −.8 .4 −3.2 −.9 −.1 1.5 .6 .7 −.5 −1.6 −1.2 −3.7 −2.2 .7 −.5 2.6 −3.0 .7 1.3 −.4 .6
−.1 .1 1.5 1.9 .1 2.5 1.6 .9 −1.0 .9 .4 3.1 2.5 .5 .1 −.1 .5 1.8 1.1 −.4 1.9 1.0 1.9 1.2 .0 1.0 1.0 .6 1.5 2.0
−.2 .4 1.3 .7 −.2 .3 2.3 .6 .1 −1.0 .7 3.2 2.0 1.6 1.6 .1 .7 .9 1.2 1.2 .7 .9 7.5 3.0 2.3 −.3 1.6 −.2 −.9 1.1 .0 −.2 1.1 1.2
.1 −.7 −.5 .9 2.1 .9 −.5 1.1 −.8 1.1 3.6 1.6 2.3 2.1 2.1 1.2 2.2 .6 .5 −.1 1.7 2.4 2.4 1.6 2.2 1.4 −.1 −2.3 1.5 −1.8 −1.5 .6 −.4 .2
.0 −.6 −1.7 −1.4 −.4 .6 1.2 −.2 .2 2.7 3.4 −1.4 1.1 1.5 4.5 1.0 2.7 1.7 .7 .7 .7 1.1 1.5 3.9 4.1 2.3 1.2 1.2 .4 2.0 1.2 .4
−.3 −1.1 −1.1 −.9 −.7 .8 .2 −.9 3.8 .2 .0 .6 1.5 −.4 −1.0 1.6 −.6 1.1 .7 .4 −.1 1.1 1.6 −1.6 −.3 .4 .6 .2 .0 −1.5 .8
.9 .0 −1.6 −3.5 .5 1.3 −.3 −.1 .3 .5 2.3 1.1 1.3 1.0 .8 .9 1.7 .4 −.4 −1.1 −1.7 5.2 −1.9 2.5 1.7 −.3 −2.1 1.5 .1 .3 .1
.4 −.6 .0 .5 1.5 .7 .3 −.1 −.6 −.9 −.9 −.8 .5 1.4 .0 −.3 −.9 .0 .2 −.7 −1.5 .1 −2.4 −.5 −.8 −2.5

SATOBS : RMS O–B VECTOR DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 24
FEBRUARY 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT



MONITORING OF SATELLITE TEMPERATURES

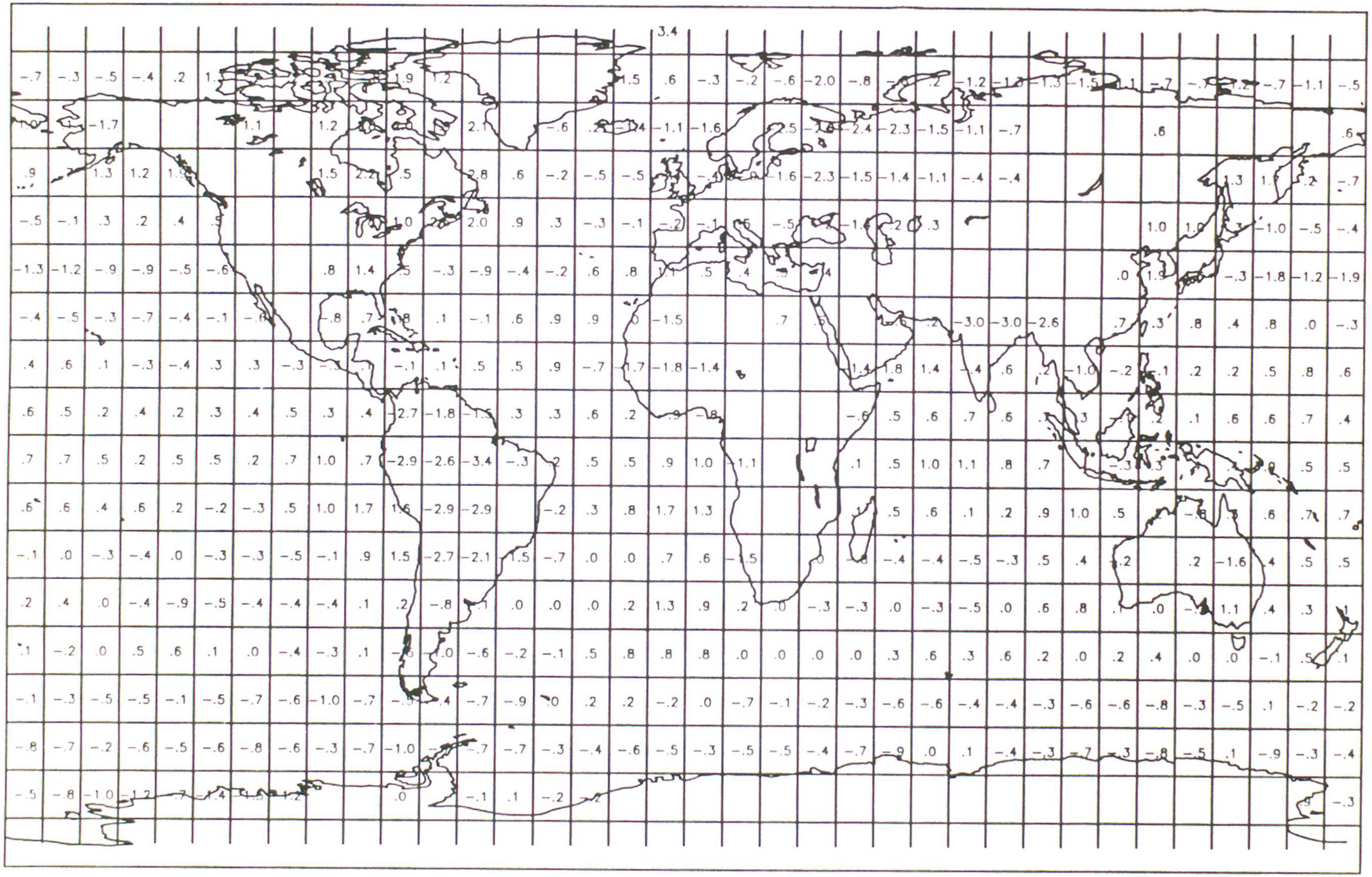
MONITORING CENTRE: BRACKNELL

MONTH: February, 95

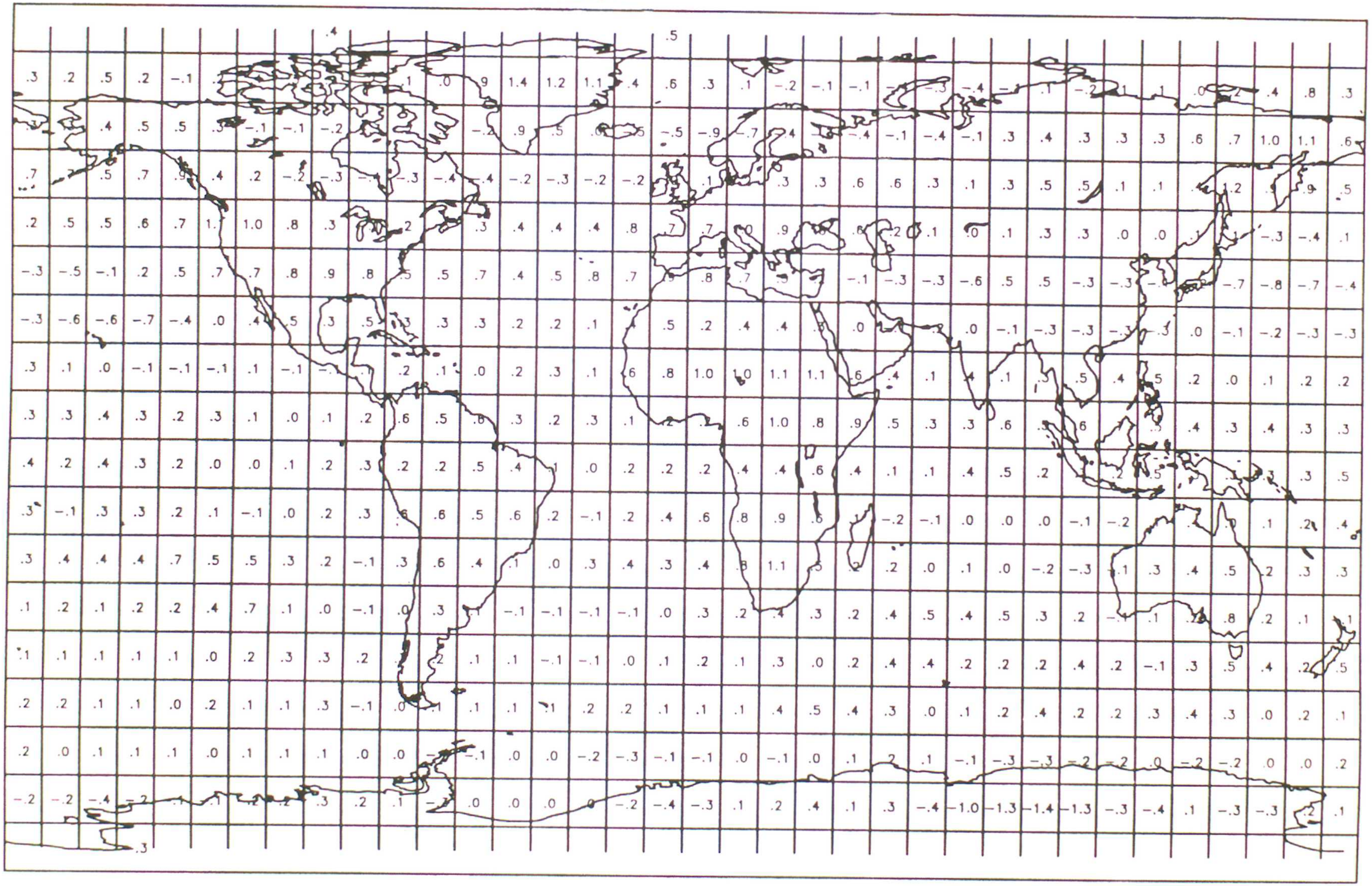
Monitoring procedures

Period	:One calendar month.
Data monitored	:Reports from NOAA-11, NOAA-12 500 km.
Standard of comparison	:Background field from Bracknell global model.
Selection Criteria	:All SATEM soundings where number of observations > 30.
Data Extracted	:Layer: 850 - 1000 hPa 100 - 300 hPa 30 - 50 hPa
	:Mean observation minus background temperature differences

500 KM SATEMS : MEAN O−B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
FEBRUARY 1995
FIGURE 25
NOAA−11, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

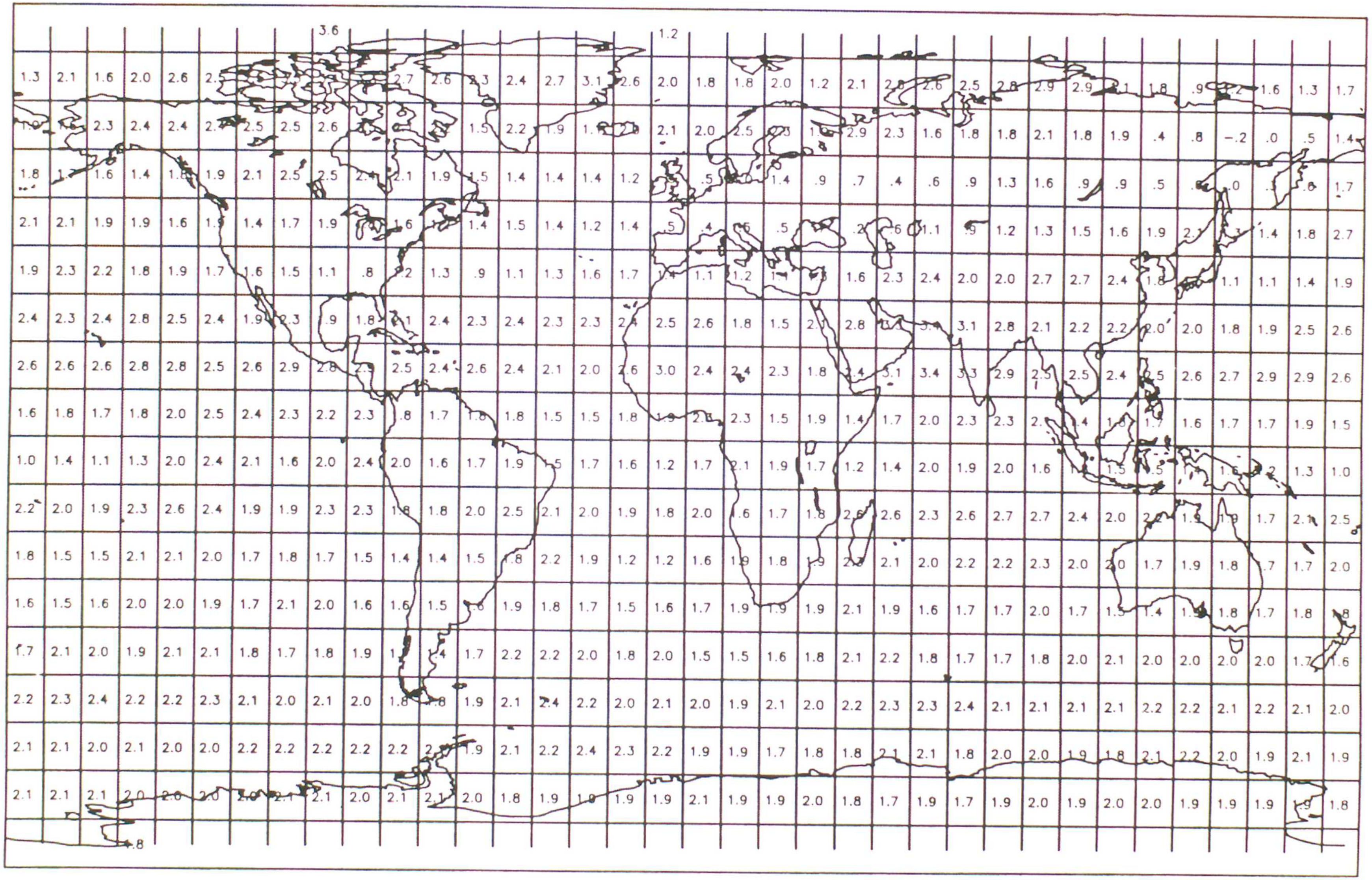

3.4
-.7 -.3 -.5 -.4 .2 1.9 1.2 1.5 .6 -.3 -.2 -.6 -2.0 -.8 .2 -1.2 -1.3 -1.3 -1.5 1.1 -.7 -.7 .2 -.7 -1.1 -.5
-1.7 1.1 1.2 2.1 -.6 -1.1 -1.6 .5 -2.4 -2.3 -1.5 -1.1 -.7 .6 .6
.9 1.3 1.2 1.5 2.2 .5 2.8 .6 -.2 -.5 -.5 -1.6 -2.3 -1.5 -1.4 -1.1 -.4 -.4 1.3 .2 -.7
-.5 -.1 .3 .2 .4 1.0 2.0 .9 .3 -.3 -.1 -.2 -.5 .3 1.0 -1.0 -.5 -.4
-1.3 -1.2 -.9 -.9 -.5 -.6 .8 1.4 -.3 -.9 -.4 -.2 .6 .8 .5 .4 .0 -.3 -1.8 -1.2 -1.9
-.4 -.5 -.3 -.7 -.4 -.1 -.8 .7 .8 .1 -.1 .6 .9 .9 -1.5 .7 .2 -3.0 -3.0 -2.6 .7 .3 .8 .4 .8 .0 -.3
.4 .6 .1 -.3 -.4 .3 .3 -.3 -.1 .1 .5 .5 .9 -.7 -1.7 -1.8 -1.4 1.4 1.8 1.4 -.4 .6 .2 -1.0 -.2 -.1 .2 .2 .5 .8 .6
.6 .5 .2 .4 .2 .3 .4 .5 .3 .4 -2.7 -1.8 .3 .3 .6 .2 -.6 .5 .6 .7 .6 .3 .1 .6 .6 .7 .4
.7 .7 .5 .2 .5 .5 .2 .7 1.0 .7 -2.9 -2.6 -3.4 -.3 .2 .5 .5 .9 1.0 1.1 .1 .5 1.0 1.1 .8 .7 .5 .5
.6 .6 .4 .6 .2 -.2 -.3 .5 1.0 1.7 1.6 -2.9 -2.9 -.2 .3 .8 1.7 1.3 .5 .6 .1 .2 .9 1.0 .5 .6 .7 .7
-.1 .0 -.3 -.4 .0 -.3 -.3 -.5 -.1 .9 1.5 -2.7 -2.1 1.5 -.7 .0 .0 .7 .6 -1.5 -.4 -.4 -.5 -.3 .5 .4 .2 .2 -1.6 .4 .5 .5
.2 .4 .0 -.4 -.9 -.5 -.4 -.4 -.4 .1 .2 -.8 .0 .0 .0 .2 1.3 .9 .2 -.3 -.3 .0 -.3 -.5 .0 .6 .8 .0 1.1 .4 .3
.1 -.2 .0 .5 .6 .1 .0 -.4 -.3 .1 .0 -.6 -.2 -.1 .5 .8 .8 .8 .0 .0 .0 .0 .3 .6 .3 .6 .2 .0 .2 .4 .0 .0 -.1 .5 .1
-.1 -.3 -.5 -.5 -.1 -.5 -.7 -.6 -1.0 -.7 .4 -.7 -.9 .0 .2 .2 -.2 .0 -.7 -.1 -.2 -.3 -.6 -.6 -.4 -.4 -.3 -.6 -.6 -.8 -.3 -.5 .1 -.2 -.2
-.8 -.7 -.2 -.6 -.5 -.6 -.8 -.6 -.3 -.7 -1.0 -.7 -.7 -.3 -.4 -.6 -.5 -.3 -.5 -.5 -.4 -.7 -.9 .0 .1 -.4 -.3 -.7 -.3 -.8 -.5 .1 -.9 -.3 -.4
-.5 -.8 -1.0 -1.2 -.7 -1.4 -1.5 -1.2 .0 -.1 .1 -.2 -.3

500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
FEBRUARY 1995
FIGURE 26
NOAA-11, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

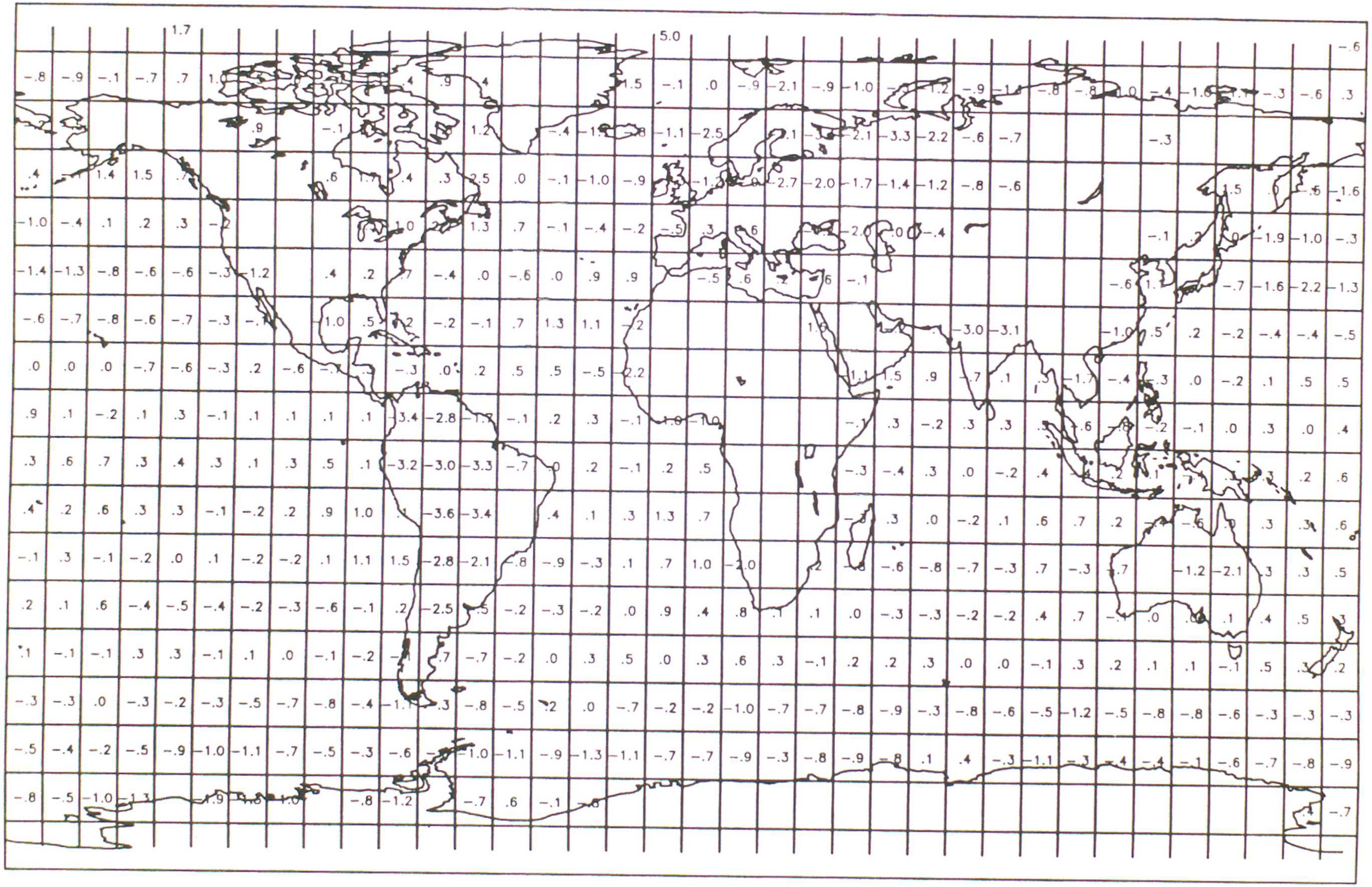


500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
FEBRUARY 1995
NOAA-11, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 27

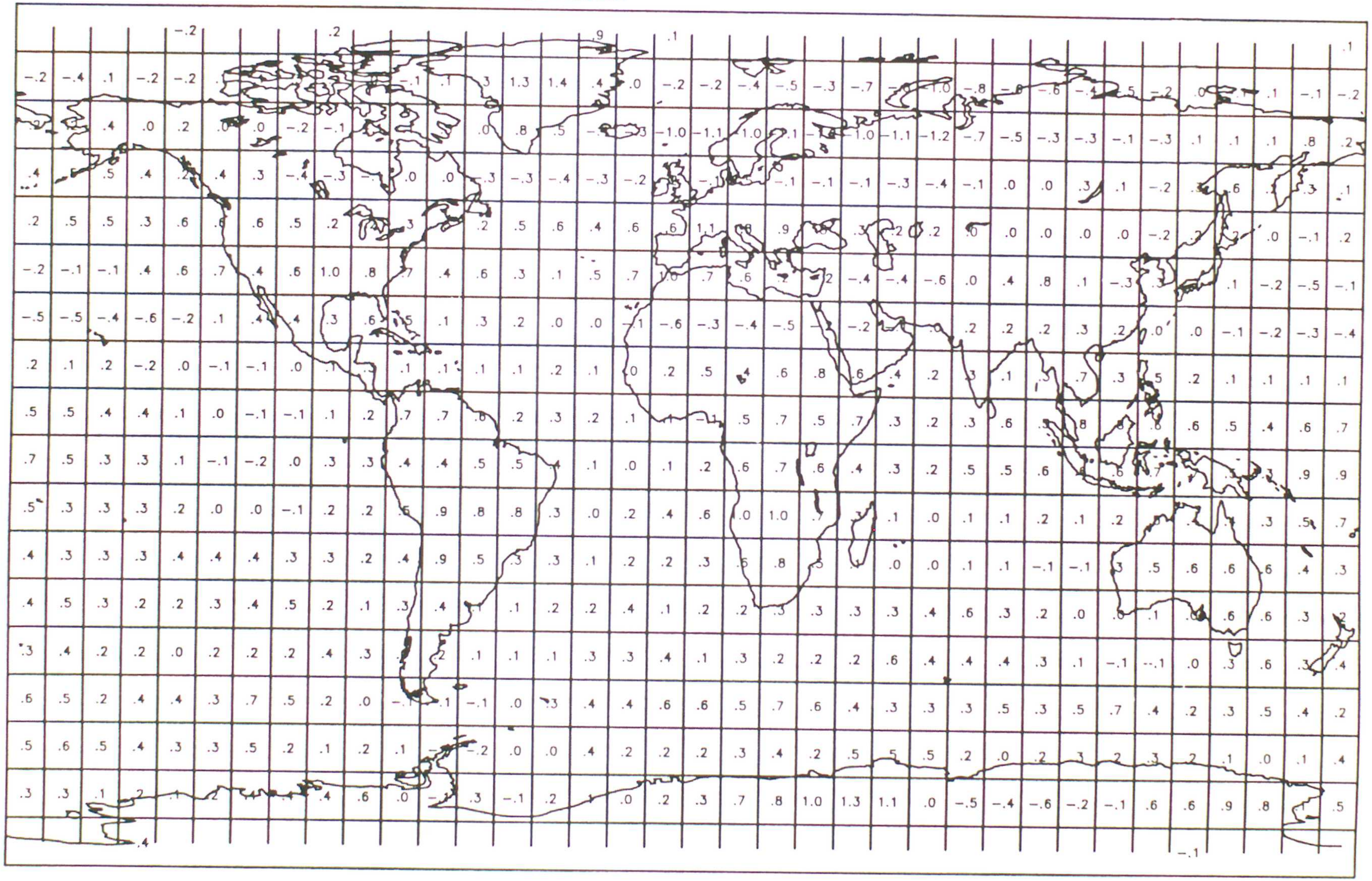

3.6 1.2
1.3 2.1 1.6 2.0 2.6 2.5 2.7 2.6 2.3 2.4 2.7 3.1 2.6 2.0 1.8 1.8 2.0 1.2 2.1 2.6 2.6 2.5 2.8 2.9 2.9 2.1 1.8 .9 .2 1.6 1.3 1.7
1.0 1.6 2.3 2.4 2.4 2.4 2.5 2.5 2.6 1.5 2.2 1.9 1.9 2.0 2.1 2.0 2.5 2.3 1.6 2.9 2.3 1.6 1.8 1.8 2.1 1.8 1.9 .4 .8 -.2 .0 .5 1.4
1.8 1.7 1.6 1.4 1.8 1.9 2.1 2.5 2.5 2.4 2.1 1.9 1.5 1.4 1.4 1.4 1.2 .5 1.4 .9 .7 .4 .6 .9 1.3 1.6 .9 .9 .5 .0 .8 1.7
2.1 2.1 1.9 1.9 1.6 1.9 1.4 1.7 1.9 1.6 1.4 1.5 1.4 1.2 1.4 .5 .4 .6 .5 .2 .6 1.1 .9 1.2 1.3 1.5 1.6 1.9 2.1 1.4 1.8 2.7
1.9 2.3 2.2 1.8 1.9 1.7 1.6 1.5 1.1 .8 .2 1.3 .9 1.1 1.3 1.6 1.7 1.4 1.1 1.2 1.1 1.3 1.6 2.3 2.4 2.0 2.0 2.7 2.7 2.4 1.8 1.1 1.1 1.4 1.9
2.4 2.3 2.4 2.8 2.5 2.4 1.9 2.3 .9 1.8 2.1 2.4 2.3 2.4 2.3 2.3 2.4 2.5 2.6 1.8 1.5 2.1 2.8 3.4 3.4 3.1 2.8 2.1 2.2 2.2 2.0 2.0 1.8 1.9 2.5 2.6
2.6 2.6 2.6 2.8 2.8 2.5 2.6 2.9 2.8 2.5 2.5 2.4 2.6 2.4 2.1 2.0 2.6 3.0 2.4 2.4 2.3 1.8 2.4 3.1 3.4 3.3 2.9 2.5 2.5 2.4 2.5 2.6 2.7 2.9 2.9 2.6
1.6 1.8 1.7 1.8 2.0 2.5 2.4 2.3 2.2 2.3 .8 1.7 1.8 1.8 1.5 1.5 1.8 1.9 2.3 2.3 1.5 1.9 1.4 1.7 2.0 2.3 2.3 2.4 1.8 1.7 1.6 1.7 1.7 1.9 1.5
1.0 1.4 1.1 1.3 2.0 2.4 2.1 1.6 2.0 2.4 2.0 1.6 1.7 1.9 1.5 1.7 1.6 1.2 1.7 2.1 1.9 1.7 1.2 1.4 2.0 1.9 2.0 1.6 1.4 1.5 1.5 1.4 1.6 2 1.3 1.0
2.2 2.0 1.9 2.3 2.6 2.4 1.9 1.9 2.3 2.3 1.8 1.8 2.0 2.5 2.1 2.0 1.9 1.8 2.0 1.6 1.7 1.8 2.6 2.6 2.3 2.6 2.7 2.7 2.4 2.0 2.2 1.5 1.9 1.7 2.1 2.5
1.8 1.5 1.5 2.1 2.1 2.0 1.7 1.8 1.7 1.5 1.4 1.4 1.5 1.8 2.2 1.9 1.2 1.2 1.6 1.9 1.8 1.9 2.2 2.1 2.0 2.2 2.2 2.3 2.0 2.0 1.7 1.9 1.8 1.7 1.7 2.0
1.6 1.5 1.6 2.0 2.0 1.9 1.7 2.1 2.0 1.6 1.6 1.5 1.6 1.9 1.8 1.7 1.5 1.6 1.7 1.9 1.9 1.9 2.1 1.9 1.6 1.7 1.7 2.0 1.7 1.5 1.4 1.5 1.8 1.7 1.8 .8
1.7 2.1 2.0 1.9 2.1 2.1 1.8 1.7 1.8 1.9 1.4 1.7 2.2 2.2 2.0 1.8 2.0 1.5 1.5 1.6 1.8 2.1 2.2 1.8 1.7 1.7 1.8 2.0 2.1 2.0 2.0 2.0 2.0 1.7 1.6
2.2 2.3 2.4 2.2 2.2 2.3 2.1 2.0 2.1 2.0 1.8 1.8 1.9 2.1 2.4 2.2 2.0 2.1 2.0 1.9 2.1 2.0 2.2 2.3 2.3 2.4 2.1 2.1 2.1 2.1 2.2 2.2 2.1 2.2 2.1 2.0
2.1 2.1 2.0 2.1 2.0 2.0 2.2 2.2 2.2 2.2 2.2 2.2 1.9 2.1 2.2 2.4 2.3 2.2 1.9 1.9 1.7 1.8 1.8 2.1 2.1 1.8 2.0 2.0 1.9 1.8 2.1 2.2 2.0 1.9 2.1 1.9
2.1 2.1 2.1 2.0 2.0 2.0 2.0 2.1 2.1 2.0 2.1 2.1 2.0 1.8 1.9 1.9 1.9 1.9 2.1 1.9 1.9 2.0 1.8 1.7 1.9 1.7 1.9 2.0 1.9 2.0 2.0 1.9 1.9 1.9 1.9 1.8
.8

500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
FEBRUARY 1995
FIGURE 28
NOAA-12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
FEBRUARY 1995
NOAA–12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 29


–.2 .2 .9 .1 .1
–.2 –.4 .1 –.2 –.2 –.1 .1 .3 1.3 1.4 .4 .0 –.2 –.2 –.4 –.5 –.3 –.7 –1.0 –.8 –.8 –.6 –.4 .5 –.2 .0 .1 –.1 –.2
.4 .0 .2 .0 .0 –.2 –.1 .0 .8 .5 –.3 –1.0 –1.1 1.0 .1 –1.0 –1.1 –1.2 –.7 –.5 –.3 –.3 –.1 –.3 .1 .1 .1 .8 .2
.4 .5 .4 .2 .4 .3 –.4 –.3 .0 .0 –.3 –.3 –.4 –.3 –.2 –.1 –.1 –.1 –.1 –.3 –.4 –.1 .0 .0 .3 .1 –.2 .3 .6 .3 .1
.2 .5 .5 .3 .6 .6 .6 .5 .2 .3 .2 .5 .6 .4 .6 .6 1.1 .8 .9 .8 .3 .2 .2 .0 .0 .0 .0 .0 –.2 .2 .2 .0 –.1 .2
–.2 –.1 –.1 .4 .6 .7 .4 .6 1.0 .8 .7 .4 .6 .3 .1 .5 .7 1.0 .7 .6 .2 .2 –.4 –.4 –.6 .0 .4 .8 .1 –.3 .3 .1 –.2 –.5 –.1
–.5 –.5 –.4 –.6 –.2 .1 .4 .4 .3 .6 .5 .1 .3 .2 .0 .0 –.1 –.6 –.3 –.4 –.5 –.2 .0 .2 .2 .2 .3 .2 .0 .0 –.1 –.2 –.3 –.4
.2 .1 .2 –.2 .0 –.1 –.1 .0 .1 .1 .1 .1 .1 .2 .1 .0 .2 .5 .4 .6 .8 .6 .4 .2 .3 .1 .3 .7 .3 .5 .2 .1 .1 .1 .1
.5 .5 .4 .4 .1 .0 –.1 –.1 .1 .2 .7 .7 .6 .2 .3 .2 .1 .1 –.1 .5 .7 .5 .7 .3 .2 .3 .6 .8 .8 .6 .6 .5 .4 .6 .7
.7 .5 .3 .3 .1 –.1 –.2 .0 .3 .3 .4 .4 .5 .5 .4 .1 .0 .1 .2 .6 .7 .6 .4 .3 .2 .5 .5 .6 .6 .7 .3 .9 .9
.5 .3 .3 .3 .2 .0 .0 –.1 .2 .2 .5 .9 .8 .8 .3 .0 .2 .4 .6 .0 1.0 .7 .3 .1 .0 .1 .1 .2 .1 .2 .3 .5 .7
.4 .3 .3 .3 .4 .4 .4 .3 .3 .2 .4 .9 .5 .3 .3 .1 .2 .2 .3 .5 .8 .5 .0 .0 .1 .1 –.1 –.1 .3 .5 .6 .6 .6 .4 .3
.4 .5 .3 .2 .2 .3 .4 .5 .2 .1 .3 .4 .1 .1 .2 .2 .4 .1 .2 .2 .3 .3 .3 .3 .4 .6 .3 .2 .0 .0 .1 .0 .6 .6 .3 .2
.3 .4 .2 .2 .0 .2 .2 .2 .4 .3 .2 .1 .1 .1 .3 .3 .4 .1 .3 .2 .2 .2 .6 .4 .4 .4 .3 .1 –.1 –.1 .0 .3 .6 .3 .4
.6 .5 .2 .4 .4 .3 .7 .5 .2 .0 –.1 .1 –.1 .0 .3 .4 .4 .6 .6 .5 .7 .6 .4 .3 .3 .3 .5 .3 .5 .7 .4 .2 .3 .5 .4 .2
.5 .6 .5 .4 .3 .3 .5 .2 .1 .2 .1 –.2 .0 .0 .4 .2 .2 .2 .3 .4 .2 .5 .5 .5 .2 .0 .2 .3 .2 .3 .2 .1 .0 .1 .4
.3 .3 .1 .2 .1 .2 .4 .4 .4 .6 .0 –.1 .3 –.1 .2 .1 .0 .2 .3 .7 .8 1.0 1.3 1.1 .0 –.5 –.4 –.6 –.2 –.1 .6 .6 .9 .8 .1 .5
.4 –.1

500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
FEBRUARY 1995
NOAA-12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 30

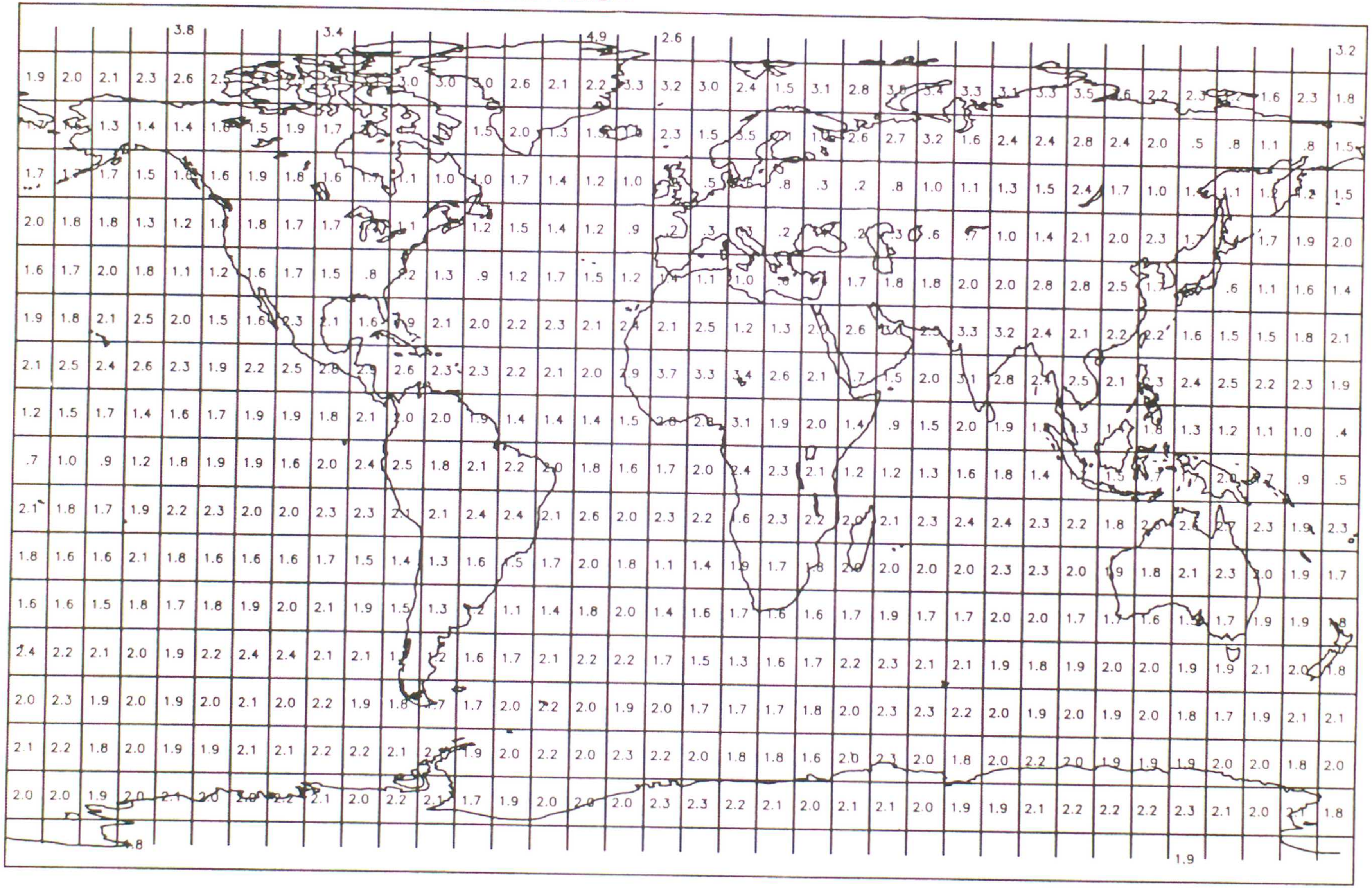

3.8 3.4 4.9 2.6 3.2
1.9 2.0 2.1 2.3 2.6 2.5 3.0 3.0 3.0 2.6 2.1 2.2 3.3 3.2 3.0 2.4 1.5 3.1 2.8 3.6 3.4 3.3 3.1 3.3 3.5 1.6 2.2 2.3 2.2 1.6 2.3 1.8
1.7 1.6 1.3 1.4 1.4 1.6 1.5 1.9 1.7 1.5 2.0 1.3 1.5 2.3 1.5 3.5 1.1 1.0 2.6 2.7 3.2 1.6 2.4 2.4 2.8 2.4 2.0 .5 .8 1.1 .8 1.5
1.7 1.7 1.7 1.5 1.6 1.6 1.9 1.8 1.6 1.1 1.0 1.0 1.7 1.4 1.2 1.0 .5 .5 .8 .3 .2 .8 1.0 1.1 1.3 1.5 2.4 1.7 1.0 1.4 1.1 1.2 1.2 1.5
2.0 1.8 1.8 1.3 1.2 1.4 1.8 1.7 1.7 1.1 1.1 1.2 1.5 1.4 1.2 .9 .2 .3 .3 .2 .2 .3 .6 .7 1.0 1.4 2.1 2.0 2.3 1.7 1.7 1.9 2.0
1.6 1.7 2.0 1.8 1.1 1.2 1.6 1.7 1.5 .8 .2 1.3 .9 1.2 1.7 1.5 1.2 1.4 1.1 1.0 1.0 .1 1.7 1.8 1.8 2.0 2.0 2.8 2.8 2.5 1.7 .6 1.1 1.6 1.4
1.9 1.8 2.1 2.5 2.0 1.5 1.6 2.3 2.1 1.6 1.9 2.1 2.0 2.2 2.3 2.1 2.4 2.1 2.5 1.2 1.3 2.0 2.6 3.4 2.5 3.3 3.2 2.4 2.1 2.2 2.2 1.6 1.5 1.5 1.8 2.1
2.1 2.5 2.4 2.6 2.3 1.9 2.2 2.5 2.8 2.5 2.6 2.3 2.3 2.2 2.1 2.0 2.9 3.7 3.3 3.4 2.6 2.1 .7 1.5 2.0 3.1 2.8 2.4 2.5 2.1 2.3 2.4 2.5 2.2 2.3 1.9
1.2 1.5 1.7 1.4 1.6 1.7 1.9 1.9 1.8 2.1 2.0 2.0 1.9 1.4 1.4 1.4 1.5 2.6 2.8 3.1 1.9 2.0 1.4 .9 1.5 2.0 1.9 1.8 1.3 1.4 1.8 1.3 1.2 1.1 1.0 .4
.7 1.0 .9 1.2 1.8 1.9 1.9 1.6 2.0 2.4 2.5 1.8 2.1 2.2 2.0 1.8 1.6 1.7 2.0 2.4 2.3 2.1 1.2 1.2 1.3 1.6 1.8 1.4 1.1 1.5 1.7 1.7 2.0 .7 .9 .5
2.1 1.8 1.7 1.9 2.2 2.3 2.0 2.0 2.3 2.3 2.1 2.1 2.4 2.4 2.1 2.6 2.0 2.3 2.2 1.6 2.3 2.2 2.0 2.1 2.3 2.4 2.4 2.3 2.2 1.8 2.0 2.6 2.7 2.3 1.9 2.3
1.8 1.6 1.6 2.1 1.8 1.6 1.6 1.6 1.7 1.5 1.4 1.3 1.6 1.5 1.7 2.0 1.8 1.1 1.4 1.9 1.7 1.8 2.0 2.0 2.0 2.0 2.3 2.3 2.0 1.9 1.8 2.1 2.3 2.0 1.9 1.7
1.6 1.6 1.5 1.8 1.7 1.8 1.9 2.0 2.1 1.9 1.5 1.3 1.2 1.1 1.4 1.8 2.0 1.4 1.6 1.7 1.6 1.6 1.7 1.9 1.7 1.7 2.0 2.0 1.7 1.7 1.6 1.5 1.7 1.9 1.9 1.8
2.4 2.2 2.1 2.0 1.9 2.2 2.4 2.4 2.1 2.1 1.1 1.2 1.6 1.7 2.1 2.2 2.2 1.7 1.5 1.3 1.6 1.7 2.2 2.3 2.1 2.1 1.9 1.8 1.9 2.0 2.0 1.9 1.9 2.1 2.0 1.8
2.0 2.3 1.9 2.0 1.9 2.0 2.1 2.0 2.2 1.9 1.8 1.7 1.7 2.0 2.2 2.0 1.9 2.0 1.7 1.7 1.7 1.8 2.0 2.3 2.3 2.2 2.0 1.9 2.0 1.9 2.0 1.8 1.7 1.9 2.1 2.1
2.1 2.2 1.8 2.0 1.9 1.9 2.1 2.1 2.2 2.2 2.1 2.1 1.9 2.0 2.2 2.0 2.3 2.2 2.0 1.8 1.8 1.6 2.0 2.3 2.0 1.8 2.0 2.2 2.0 1.9 1.9 1.9 2.0 2.0 1.8 2.0
2.0 2.0 1.9 2.0 2.1 2.0 2.0 2.2 2.1 2.0 2.2 2.1 1.7 1.9 2.0 2.0 2.0 2.3 2.3 2.2 2.1 2.0 2.1 2.1 2.0 1.9 1.9 2.1 2.2 2.2 2.2 2.3 2.1 2.0 2.1 1.8
1.8 1.9

TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)
DATA TYPE:- DRIFTER
MONITORING CENTRE: BRACKNELL
MONTH:February, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoy.

Area monitored :10°N - 80°N, 85°W - 0°W

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :All hours combined.

Elements monitored :Mean sea-level pressure (hPa)
:Wind speed ($m\ s^{-1}$)
:Wind direction (degrees)

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. A positive bias indicates the observation is veered to the background

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors

GROSS ERROR LIMITS :15 hPa (pressure)
:25 $m\ s^{-1}$ (Vector Wind)

N.B. Observations of wind direction are only included in the wind direction statistics if the wind speed > 3 $m\ s^{-1}$

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
25565	73.8	-14.0	ALL	MSLP	SUR	552	2	0	1.9	0.0	1.9
29501	39.4	-52.1	ALL	MSLP	SUR	2	0	0	0.6	-2.1	2.2
29502	27.8	-60.4	ALL	MSLP	SUR	6	0	0	1.8	-1.3	2.2
39502	36.3	-68.6	ALL	MSLP	SUR	1	0	0	0.0	-1.5	1.5
40504	17.1	-67.3	ALL	MSLP	SUR	2	0	0	0.6	2.9	3.0
40505	19.5	-62.0	ALL	MSLP	SUR	1	0	0	0.0	-0.4	0.4
40507	34.9	-53.0	ALL	MSLP	SUR	1	0	0	0.0	2.7	2.7
40806	28.3	-71.0	ALL	MSLP	SUR	1	0	0	0.0	-0.8	0.8
44614	54.1	-15.9	ALL	MSLP	SUR	904	1	0	1.6	0.0	1.6
44617	54.1	-11.9	ALL	MSLP	SUR	706	0	0	2.0	-0.1	2.0
44624	51.6	-30.1	ALL	MSLP	SUR	784	6	1	2.4	-0.5	2.5
44726	53.4	-33.3	ALL	MSLP	SUR	848	1	0	2.6	0.3	2.6
44762	53.1	-17.4	ALL	MSLP	SUR	881	1	0	1.7	0.0	1.7
44764	60.5	-25.9	ALL	MSLP	SUR	1062	1	0	2.0	0.1	2.0
44766	52.9	-29.2	ALL	MSLP	SUR	707	3	0	2.8	-1.3	3.0
44767	62.2	-27.5	ALL	MSLP	SUR	3	1	33	1.6	-2.9	3.3
44770	57.7	-45.7	ALL	MSLP	SUR	2	0	0	0.1	-5.2	5.2
44774	53.9	-10.0	ALL	MSLP	SUR	10	8	80	10.4	3.4	11.0
44775	55.9	-15.1	ALL	MSLP	SUR	995	1	0	1.9	0.2	1.9
44776	59.9	-19.7	ALL	MSLP	SUR	1072	3	0	1.8	-0.3	1.8
44780	55.5	-21.0	ALL	MSLP	SUR	948	3	0	1.9	0.2	1.9
46510	44.7	-63.6	ALL	MSLP	SUR	19	0	0	1.2	-4.7	4.8
49502	38.2	-38.6	ALL	MSLP	SUR	5	0	0	0.6	-2.1	2.2
59502	38.7	-41.2	ALL	MSLP	SUR	1	0	0	0.0	-0.9	0.9
62510	49.8	-7.8	ALL	MSLP	SUR	411	0	0	1.7	0.5	1.8
62511	43.8	-13.0	ALL	MSLP	SUR	284	0	0	1.3	0.6	1.5
62524	25.4	-38.9	ALL	MSLP	SUR	462	0	0	1.4	0.3	1.4
64528	58.9	-20.7	ALL	MSLP	SUR	770	0	0	1.9	-0.2	1.9
64529	61.8	-32.7	ALL	MSLP	SUR	679	2	0	1.8	0.2	1.8
64544	56.0	-40.6	ALL	MSLP	SUR	212	0	0	2.5	0.1	2.5
64546	61.0	-35.6	ALL	MSLP	SUR	315	0	0	2.1	-1.6	2.6
64547	59.0	-30.8	ALL	MSLP	SUR	219	0	0	2.4	0.8	2.6
64560	61.3	-20.8	ALL	MSLP	SUR	2	0	0	0.4	8.6	8.6
65571	57.7	-20.6	ALL	MSLP	SUR	969	2	0	2.4	-0.7	2.5
65592	61.0	-19.5	ALL	MSLP	SUR	841	16	2	2.5	3.2	4.1
WIND SPEED											
29501	39.4	-52.1	ALL	SPEED	SUR	2	0	0	1.6	7.3	7.5
29502	27.8	-60.4	ALL	SPEED	SUR	7	0	0	2.4	0.4	2.4
39502	36.3	-68.6	ALL	SPEED	SUR	1	0	0	0.0	1.0	1.0
40504	17.1	-67.3	ALL	SPEED	SUR	2	0	0	0.4	1.8	1.9
40505	19.5	-62.0	ALL	SPEED	SUR	1	0	0	0.0	2.3	2.3
40507	34.9	-53.0	ALL	SPEED	SUR	1	0	0	0.0	8.3	8.3
40806	28.3	-71.0	ALL	SPEED	SUR	1	0	0	0.0	7.8	7.8
44617	54.1	-11.9	ALL	SPEED	SUR	566	0	0	2.5	-1.4	2.9
44762	53.1	-17.4	ALL	SPEED	SUR	859	0	0	2.1	-1.6	2.7
44764	60.5	-25.9	ALL	SPEED	SUR	1031	2	0	2.9	-2.1	3.6
44776	59.9	-19.7	ALL	SPEED	SUR	1039	12	1	2.9	-0.8	3.0
49502	38.2	-38.6	ALL	SPEED	SUR	5	0	0	1.7	0.9	1.9
59502	38.7	-41.2	ALL	SPEED	SUR	1	0	0	0.0	-1.1	1.1
64544	56.0	-40.6	ALL	SPEED	SUR	209	0	0	3.9	-7.7	8.6
WIND DIRECTION											
29501	39.4	-52.1	ALL	DIRN.	SUR	2	0	0	33.6	-23.1	40.8
29502	27.8	-60.4	ALL	DIRN.	SUR	6	0	0	24.4	8.2	25.7
39502	36.3	-68.6	ALL	DIRN.	SUR	1	0	0	0.0	-46.5	46.5
40504	17.1	-67.3	ALL	DIRN.	SUR	2	0	0	20.0	17.5	26.6
40505	19.5	-62.0	ALL	DIRN.	SUR	1	0	0	0.0	2.3	2.3
40507	34.9	-53.0	ALL	DIRN.	SUR	1	0	0	0.0	-3.2	3.2
40806	28.3	-71.0	ALL	DIRN.	SUR	1	0	0	0.0	-3.4	3.4
44617	54.1	-11.9	ALL	DIRN.	SUR	533	0	0	43.3	7.4	43.9
44762	53.1	-17.4	ALL	DIRN.	SUR	831	0	0	31.0	-3.6	31.2

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
WIND DIRECTION											
44764	60.5	-25.9	ALL	DIRN.	SUR	840	2	0	35.2	-1.5	35.3
44776	59.9	-19.7	ALL	DIRN.	SUR	940	12	1	68.0	9.8	68.7
49502	38.2	-38.6	ALL	DIRN.	SUR	4	0	0	32.7	29.7	44.2
59502	38.7	-41.2	ALL	DIRN.	SUR	1	0	0	0.0	29.3	29.3
64544	56.0	-40.6	ALL	DIRN.	SUR	192	0	0	80.9	-13.6	82.1

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:February, 95

Monitoring procedures: **Period**		:One calendar month.
Data monitored		:Statistics for each airline carrier.
Area monitored		:40°N - 70°N, 60°W - 0°W.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:All hours combined.
Level(s) monitored		:300.0 - 150.0 hPa
Elements monitored		:TEMP in °C ; WIND in $m\ s^{-1}$
Parameters monitored	:N REP.	:Number of observations received excluding duplicates.
	:PG	:Percentage of observations with gross errors.
	:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC	:Percentage of observations with calm winds.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.
GROSS ERROR LIMITS		:10.0 °C ; 60 $m\ s^{-1}$ Vector Wind
SELECTION CRITERIA		:N REP $\geq$ 20

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	1748	0	1	1.9	0.0	1762	0	2	0	8.2	1.0
AAN	31	0	3	2.0	-0.8	30	0	7	0	12.9	2.2
ACA	524	1	1	2.0	0.1	525	0	1	0	7.0	0.3
AEA	65	5	100	4.7	0.9	65	0	2	0	8.3	1.5
AEL	286	3	7	2.2	-0.5	294	0	7	0	11.1	0.6
AFL	79	0	100	3.8	2.4	81	0	100	0	11.7	0.4
AFR	758	1	6	2.3	-0.1	769	0	5	0	9.6	1.1
AIC	48	2	0	3.0	-0.6	48	0	2	0	11.3	3.5
AMX	92	4	5	1.9	-0.3	95	0	0	0	7.8	1.2
ANZ	155	1	5	2.0	-0.9	156	0	6	1	8.2	0.1
AOM	215	2	3	2.0	0.3	221	0	51	0	11.1	1.1
APW	20	0	10	2.7	-0.3	21	0	10	0	14.0	1.2
ARP	23	0	0	1.7	0.2	23	0	4	4	8.3	-0.4
AUA	87	0	3	2.0	-0.7	88	0	6	0	8.4	0.5
AVA	71	1	3	2.6	-0.2	71	3	4	0	12.3	-0.1
AZA	306	1	2	2.3	0.7	301	0	2	0	8.8	0.6
BAL	93	0	15	2.3	-0.3	93	0	17	0	8.3	-0.7
BAW	885	0	5	2.2	0.1	897	0	5	1	8.4	1.1
BWA	85	1	1	2.1	0.5	86	0	2	0	9.9	-1.0
CDN	446	0	4	1.9	0.2	445	0	6	1	7.2	0.6
CFC	25	0	8	2.2	0.5	26	0	12	0	6.9	0.2
CFG	375	1	2	2.3	-0.9	378	0	2	0	8.8	0.1
CKT	35	3	3	2.6	0.6	37	0	0	0	12.0	2.3
CLX	37	0	5	2.1	-0.6	37	0	5	0	9.8	2.3
COA	271	1	2	2.1	0.6	275	0	3	1	9.2	1.1
CRL	83	4	6	2.6	-0.6	86	0	2	0	10.2	0.3
CTM	34	0	21	3.4	-2.1	36	0	17	0	9.8	0.3
CUB	65	2	5	2.8	0.8	65	0	49	2	13.6	0.1
DAF	24	0	0	2.2	1.0	23	0	9	9	6.3	-1.8
DAL	1760	1	2	2.3	0.4	1768	0	2	0	8.5	0.8
DHL	387	1	100	3.5	-1.4	392	0	45	0	10.4	0.3
DLH	1642	0	12	2.4	0.5	1660	0	13	1	8.0	1.2
DOA	66	0	17	2.3	-0.3	67	0	22	0	10.9	0.3
ELY	93	0	10	2.2	0.3	94	0	11	0	11.1	2.7
FDX	426	0	3	2.0	0.7	428	0	4	1	9.4	1.0
FIN	294	0	3	2.2	0.6	296	0	6	1	9.2	0.6
GAF	56	0	0	2.1	0.5	58	2	2	0	6.2	1.3
GFA	25	4	12	1.9	0.3	26	0	8	0	6.5	1.9
HLF	47	0	9	2.9	-0.8	47	0	0	0	9.4	-0.5
IBE	699	0	17	2.3	0.4	707	0	19	0	11.5	0.2
ICE	393	0	1	2.1	0.5	389	0	2	1	6.5	0.6
KLM	1450	0	1	2.1	0.0	1473	0	2	0	8.4	1.0
LDA	80	0	9	2.6	-1.6	81	0	10	0	9.3	-0.5
LDI	118	0	6	2.8	-1.9	119	0	7	0	11.1	-1.3
LIB	125	3	2	1.9	0.6	129	0	0	0	9.8	1.1
LOT	256	0	2	2.1	-0.3	255	0	2	0	8.0	0.4
LTU	371	0	2	2.0	0.4	367	0	3	1	10.0	0.4
MKD	52	2	0	2.1	0.3	54	0	0	0	7.7	1.8
MPH	329	0	2	2.3	-1.0	333	0	3	0	9.8	0.6
NWA	1413	0	3	2.3	1.1	1420	0	4	1	8.3	0.8
PIA	28	4	4	2.4	-1.0	28	0	0	0	6.3	0.6
RJA	64	0	2	2.2	0.3	66	0	3	0	9.4	-0.9
RRR	142	1	15	2.2	0.3	142	0	17	0	10.0	2.8
SAB	92	0	0	1.6	-0.1	96	0	0	0	7.3	2.1
SAS	956	0	1	1.8	0.0	956	0	2	1	7.3	0.0
SIA	49	0	2	2.0	-0.9	49	0	4	0	12.7	1.8
SPP	83	0	10	1.8	-0.5	84	0	11	0	8.4	-0.5
SVA	145	0	8	1.6	0.1	148	0	9	0	9.7	0.2
SWR	124	1	2	1.8	0.3	128	0	2	0	7.7	1.7

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
TAP	136	0	10	2.2	0.3	137	0	9	0	10.0	0.3
TEJ	40	0	10	3.0	1.3	40	0	15	0	9.9	1.9
TIH	35	0	0	1.9	-0.5	35	0	0	0	7.9	2.6
TOW	36	0	0	2.6	-0.3	38	0	0	0	7.4	0.7
TWA	651	0	3	2.3	-0.2	647	0	3	0	8.7	0.4
UAL	1276	1	5	2.3	-0.2	1294	0	4	3	9.5	0.2
ULE	61	0	2	1.4	-0.1	60	0	2	0	8.1	0.8
UPS	467	0	15	2.0	0.0	464	0	16	0	9.1	1.5
USA	84	0	2	1.7	0.1	83	0	4	0	9.4	0.3
VIA	68	0	1	2.0	0.7	69	0	1	0	9.1	0.1
VIR	198	1	4	1.9	0.2	197	0	5	0	8.8	2.9
BA	5522	0	22	2.0	0.8	5517	0	21	0	8.1	1.2
KL	2374	0	71	2.9	2.3	2374	0	19	0	9.1	1.4
LH	161	0	3	2.4	0.3	160	0	21	0	10.1	-1.2
M	94	7	100	3.6	0.6	96	3	100	0	16.6	1.9
N	191	4	7	2.9	0.5	195	0	5	1	9.3	1.1

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:February, 95

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.
GROSS ERROR LIMITS	:Defined in Appendix I.1	

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	100	1	0	0.0	31.0	31.0
DBBH	12	Z	100	13	0	32.3	42.8	28.2
DBLK	00	Z	100	1	0	0.0	33.0	33.0
EHOA	12	Z	100	20	0	46.0	55.4	30.9
FNOR	00	Z	100	7	0	13.9	20.2	14.7
FNOR	12	Z	100	2	0	17.0	29.4	24.0
FNOU	00	Z	100	10	0	17.6	26.3	19.5
FNOU	12	Z	100	5	0	23.9	24.1	-3.2
FNPH	00	Z	100	8	0	16.3	19.0	-9.6
FNPH	12	Z	100	11	0	20.2	26.5	-17.2
FNRS	00	Z	100	13	0	17.7	17.8	1.8
FNRS	12	Z	100	14	0	26.8	27.1	3.4
F2LX	00	Z	100	1	0	0.0	5.0	5.0
GACA	00	Z	100	27	0	20.6	21.2	5.0
GACA	12	Z	100	26	0	32.1	32.5	5.2
JBOA	00	Z	100	1	0	0.0	26.0	26.0
JCCX	00	Z	100	1	0	0.0	16.0	16.0
LDWR	00	Z	100	28	0	17.2	25.0	18.2
LDWR	12	Z	100	26	0	17.9	26.7	19.7
OXYL	00	Z	100	13	0	23.4	25.4	9.9
OXYL	12	Z	100	11	0	11.5	12.9	5.8
SHIPS	00	Z	100	4	0	13.6	47.5	45.5
SHIPS	12	Z	100	10	0	13.1	61.3	59.9
UQYC	00	Z	100	1	0	0.0	20.0	20.0
V2LV	00	Z	100	17	0	21.0	27.3	17.5
V2LV	12	Z	100	18	0	20.9	26.1	15.7
V2LX	00	Z	100	25	0	18.4	19.4	5.9
V2LX	12	Z	100	21	0	15.0	20.4	13.8
WTEA	00	Z	100	1	0	0.0	14.0	-14.0
ZDLG	00	Z	100	1	0	0.0	32.0	32.0
03953	00	Z	100	22	0	17.1	22.8	15.1
03953	12	Z	100	25	0	14.7	23.4	18.2
04018	00	Z	100	28	0	23.3	33.4	23.9
04018	12	Z	100	27	0	21.5	32.4	24.3
04220	00	Z	100	27	0	23.4	26.2	11.7
04220	12	Z	100	28	0	18.0	23.9	15.7
04270	00	Z	100	27	0	26.9	29.0	10.6
04270	12	Z	100	26	0	24.0	26.9	12.3
04339	00	Z	100	27	0	20.0	23.9	13.1
04339	12	Z	100	27	0	20.6	31.8	24.3
04360	00	Z	100	25	0	26.3	30.9	16.2
04360	12	Z	100	26	0	14.9	22.5	16.8
08001	00	Z	100	26	0	19.1	21.1	8.8
08001	12	Z	100	23	0	17.0	18.4	7.0
08508	00	Z	100	28	0	21.9	25.5	13.0
08508	12	Z	100	16	1	15.2	16.6	6.6
08594	00	Z	100	27	0	27.0	27.1	1.8
08594	12	Z	100	25	0	38.8	39.1	4.4
60020	00	Z	100	27	0	17.1	23.1	15.5
60020	12	Z	100	26	0	26.0	27.8	9.6
71600	00	Z	100	27	0	21.2	43.5	37.9
71600	12	Z	100	25	0	21.6	31.0	22.3
72201	00	Z	100	24	0	21.0	38.4	32.2
72201	12	Z	100	23	0	20.1	33.2	26.4
72402	00	Z	100	26	0	28.9	55.0	46.8
72402	12	Z	100	25	0	24.3	37.4	28.4
74494	00	Z	100	23	0	24.4	24.9	-5.0
74494	12	Z	100	26	0	20.7	23.4	-10.9

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:February, 95

Monitoring procedures:

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :500 hPa.

Element monitored :GEOPOTENTIAL HEIGHT in metres

Parameters monitored :NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	500	1	0	0.0	16.0	16.0
DBBH	12	Z	500	10	0	13.3	18.1	12.2
DBLK	00	Z	500	1	0	0.0	18.0	18.0
EHOA	12	Z	500	19	0	9.8	19.6	16.9
FNOR	00	Z	500	11	0	7.3	14.6	12.6
FNOR	12	Z	500	4	0	17.5	22.1	13.5
FNOU	00	Z	500	10	0	12.7	18.6	13.6
FNOU	12	Z	500	5	0	6.7	13.2	11.4
FNPH	00	Z	500	9	0	15.6	17.0	-6.8
FNPH	12	Z	500	12	0	16.0	18.2	-8.6
FNRS	00	Z	500	13	0	9.4	9.8	-2.5
FNRS	12	Z	500	14	0	16.4	16.9	-4.4
F2LX	00	Z	500	1	0	0.0	0.0	0.0
GACA	00	Z	500	27	0	12.7	13.3	-3.9
GACA	12	Z	500	26	0	19.6	19.9	-3.7
JBOA	00	Z	500	1	0	0.0	15.0	15.0
JCCX	00	Z	500	1	0	0.0	5.0	-5.0
LDWR	00	Z	500	28	0	14.4	14.7	2.6
LDWR	12	Z	500	26	0	12.2	13.9	6.8
OXYL	00	Z	500	14	0	10.3	10.3	-0.9
OXYL	12	Z	500	14	0	15.2	16.8	-7.3
SHIPS	00	Z	500	17	0	13.5	23.8	19.6
SHIPS	12	Z	500	14	0	10.0	24.6	22.5
UQYC	00	Z	500	1	0	0.0	18.0	-18.0
V2LV	00	Z	500	18	0	15.0	16.2	5.9
V2LV	12	Z	500	19	0	13.0	13.5	3.5
V2LX	00	Z	500	25	0	10.1	12.9	8.0
V2LX	12	Z	500	22	0	10.9	13.5	7.9
WTEA	00	Z	500	1	0	0.0	7.0	7.0
ZDLG	00	Z	500	1	0	0.0	25.0	25.0
03953	00	Z	500	28	0	16.7	16.7	-0.5
03953	12	Z	500	27	0	18.3	19.4	6.4
04018	00	Z	500	28	0	17.4	17.5	1.2
04018	12	Z	500	28	0	13.6	16.1	8.8
04220	00	Z	500	27	0	22.3	23.2	-6.2
04220	12	Z	500	28	0	14.6	14.7	0.9
04270	00	Z	500	28	0	14.4	14.5	0.5
04270	12	Z	500	27	0	13.7	14.5	4.9
04339	00	Z	500	26	0	12.6	12.9	2.5
04339	12	Z	500	28	0	12.4	13.5	5.4
04360	00	Z	500	25	0	11.3	11.4	-0.5
04360	12	Z	500	26	0	11.3	11.3	1.2
08001	00	Z	500	27	0	17.5	18.2	5.0
08001	12	Z	500	24	0	17.2	18.4	6.6
08508	00	Z	500	28	0	15.1	15.9	4.8
08508	12	Z	500	18	0	16.4	16.8	3.8
08594	00	Z	500	27	0	12.4	17.5	-12.4
08594	12	Z	500	22	0	10.5	15.6	-11.6
60020	00	Z	500	27	0	8.0	15.6	13.4
60020	12	Z	500	27	0	10.7	15.8	11.5
71600	00	Z	500	25	0	10.9	10.9	0.8
71600	12	Z	500	24	0	12.8	14.3	6.5
72201	00	Z	500	24	0	16.2	19.9	11.7
72201	12	Z	500	22	0	6.1	11.7	10.0
72402	00	Z	500	27	0	14.9	21.1	15.0
72402	12	Z	500	28	0	12.6	17.5	12.1
74494	00	Z	500	25	0	18.6	18.7	-2.3
74494	12	Z	500	27	0	16.7	18.8	-8.7
78016	12	Z	500	3	0	9.0	10.0	-4.3

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:February, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :100 hPa.

Element monitored :VECTOR WIND in $m\ s^{-1}$

Parameters monitored :NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:UBIAS,VBIAS:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	100	1	0	0	0.0	3.7	3.4
DBBH	12	V	100	11	0	0	0.0	4.1	2.0
DBLK	00	V	100	1	0	0	5.9	4.6	-5.0
EHOA	12	V	100	21	0	0	6.3	-0.5	1.9
F	00	V	100	1	0	0	5.3	4.9	-2.9
FNOR	00	V	100	6	0	0	5.3	0.8	-2.6
FNOR	12	V	100	1	0	0	5.3	-3.3	-3.6
FNOU	00	V	100	10	0	0	5.3	0.9	-1.4
FNOU	12	V	100	5	0	0	5.5	-0.3	-0.1
FNPH	00	V	100	8	0	0	5.5	0.3	-0.3
FNPH	12	V	100	11	0	9	5.5	-2.4	-1.6
FNRS	00	V	100	12	0	0	4.1	-1.1	-1.0
FNRS	12	V	100	13	0	0	2.8	-3.4	0.8
GACA	00	V	100	27	0	0	3.6	-0.8	-1.3
GACA	12	V	100	26	0	0	2.5	-1.5	-0.5
JBOA	00	V	100	1	0	0	3.2	0.9	2.7
JCCX	00	V	100	1	0	0	2.2	2.1	-0.1
LDWR	00	V	100	28	0	0	2.2	1.2	-1.8
LDWR	12	V	100	26	0	0	3.1	1.2	-1.9
OXYL	00	V	100	13	0	0	2.9	0.1	1.0
OXYL	12	V	100	10	0	0	2.2	0.1	0.1
SHIPS	00	V	100	3	0	0	2.5	0.9	-0.8
SHIPS	12	V	100	7	0	0	2.5	0.7	1.3
UQYC	00	V	100	1	0	100	2.5	-0.9	-0.8
V2LV	00	V	100	17	0	0	2.1	-0.3	-0.3
V2LV	12	V	100	18	0	0	3.7	-2.0	0.1
V2LX	00	V	100	25	0	0	3.7	-1.6	-0.7
V2LX	12	V	100	21	0	0	4.6	-3.7	-0.9
WTEA	00	V	100	1	0	0	6.0	-8.1	4.1
ZDLG	00	V	100	1	0	0	6.0	0.5	6.8
03953	00	V	100	22	0	0	2.6	-0.8	0.0
03953	12	V	100	25	0	0	3.7	-2.7	-1.4
04018	00	V	100	27	0	0	3.3	1.5	-0.1
04018	12	V	100	26	0	0	3.3	-0.2	0.5
04220	00	V	100	25	0	0	2.0	-0.4	1.5
04220	12	V	100	27	0	0	2.8	-0.8	1.6
04270	00	V	100	27	0	0	2.7	1.0	2.1
04270	12	V	100	26	0	0	4.1	0.5	1.8
04339	00	V	100	27	0	0	2.9	2.3	0.9
04339	12	V	100	27	0	0	3.5	0.8	0.1
04360	00	V	100	24	0	0	2.4	1.0	1.1
04360	12	V	100	26	0	0	3.0	-0.1	1.3
08001	00	V	100	26	0	0	4.7	-0.9	-0.1
08001	12	V	100	23	0	0	3.3	-2.2	0.0
08508	00	V	100	26	0	0	4.1	1.8	-1.8
08508	12	V	100	18	0	0	3.3	-1.4	-1.8
60020	00	V	100	27	0	0	7.3	4.5	0.4
60020	12	V	100	26	0	0	5.8	-0.1	1.5
71600	00	V	100	25	0	0	5.7	1.9	0.7
71600	12	V	100	22	0	0	4.1	1.9	0.7
72201	00	V	100	21	0	0	2.8	2.3	0.8
72201	12	V	100	18	0	0	4.9	-1.9	1.0
72402	00	V	100	21	0	0	3.1	0.5	1.7
72402	12	V	100	23	0	0	4.1	0.5	0.7
74494	00	V	100	20	0	0	5.5	0.1	1.4
74494	12	V	100	20	0	0	2.8	0.6	1.7

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:February, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :500 hPa.

Element monitored :VECTOR WIND in m s^{-1}

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:UBIAS,VBIAS:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	500	1	0	0	0.0	-1.3	-3.8
DBBH	12	V	500	10	0	0	0.0	-1.2	0.5
DBLK	00	V	500	1	0	0	3.0	2.7	2.7
EHOA	12	V	500	18	0	0	5.4	-1.9	0.1
FNOR	00	V	500	10	0	0	2.6	1.4	0.6
FNOR	12	V	500	4	0	0	5.5	1.7	-3.2
FNOU	00	V	500	10	0	0	5.5	0.5	-1.9
FNOU	12	V	500	5	0	0	5.4	3.0	-2.6
FNPH	00	V	500	9	0	0	5.4	-2.3	-1.3
FNPH	12	V	500	12	0	8	5.4	-0.2	2.8
FNRS	00	V	500	12	0	0	5.8	-1.3	-0.2
FNRS	12	V	500	14	0	0	2.9	1.3	-0.4
F2LX	00	V	500	1	0	0	3.5	-2.1	-1.1
GACA	00	V	500	27	0	0	3.5	0.2	2.0
GACA	12	V	500	26	0	0	4.5	-1.2	0.5
JBOA	00	V	500	1	0	0	5.1	-1.6	-0.8
JCCX	00	V	500	1	0	0	4.3	0.5	0.8
LDWR	00	V	500	28	0	0	4.3	-0.2	1.2
LDWR	12	V	500	26	0	0	3.5	0.7	0.9
OXYL	00	V	500	14	0	0	3.7	-1.4	1.9
OXYL	12	V	500	14	0	0	4.1	0.1	0.4
SHIPS	00	V	500	17	0	5	5.3	0.4	0.4
SHIPS	12	V	500	14	0	0	3.4	0.1	0.4
UQYC	00	V	500	1	0	0	3.3	-0.8	1.6
V2LV	00	V	500	18	0	0	3.9	0.2	0.9
V2LV	12	V	500	19	0	0	4.0	0.6	-0.6
V2LX	00	V	500	26	0	0	4.9	-1.0	0.7
V2LX	12	V	500	22	0	0	3.3	-2.3	0.8
WTEA	00	V	500	1	0	0	3.4	7.5	-1.4
03953	00	V	500	28	0	0	5.4	0.5	-1.6
03953	12	V	500	27	0	0	4.5	-0.8	-0.5
04018	00	V	500	28	0	0	5.6	1.6	0.1
04018	12	V	500	28	0	0	4.8	0.2	-0.2
04220	00	V	500	27	0	0	3.9	-0.3	0.7
04220	12	V	500	28	0	0	3.7	-0.7	-0.7
04270	00	V	500	28	0	0	3.8	0.7	0.6
04270	12	V	500	27	0	0	5.5	0.5	-0.7
04339	00	V	500	26	0	0	4.1	-0.1	0.4
04339	12	V	500	28	0	0	2.1	0.0	-0.1
04360	00	V	500	24	0	0	3.6	-0.7	0.8
04360	12	V	500	26	0	0	3.7	-0.6	-0.9
08001	00	V	500	27	0	0	5.9	2.0	-0.8
08001	12	V	500	22	0	4	4.2	1.2	-0.7
08508	00	V	500	28	0	0	4.5	1.7	2.4
08508	12	V	500	17	0	0	4.6	-0.4	0.0
60020	00	V	500	26	0	0	2.3	-0.5	-0.7
60020	12	V	500	27	0	0	2.3	-1.4	-1.5
71600	00	V	500	25	0	0	3.8	2.0	0.5
71600	12	V	500	24	0	0	5.5	1.2	0.8
72201	00	V	500	24	0	0	3.7	1.2	0.9
72201	12	V	500	21	0	0	3.7	0.1	0.8
72402	00	V	500	23	0	0	4.8	0.7	0.3
72402	12	V	500	27	0	0	3.7	1.8	1.0
74494	00	V	500	25	0	0	3.3	-1.1	1.9
74494	12	V	500	27	0	0	4.1	-0.7	0.9
78016	12	V	500	3	0	0	3.9	0.8	1.1

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5,10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed $m\ s^{-1}$
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45